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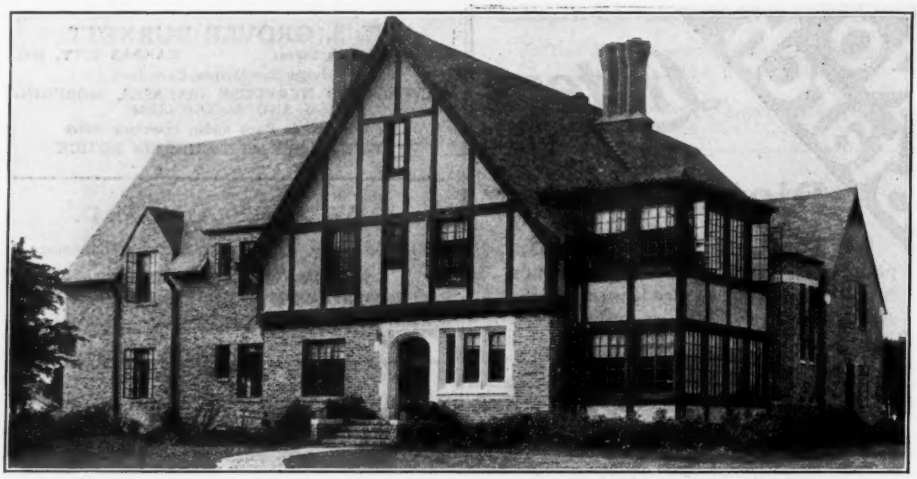

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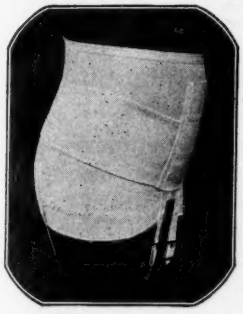

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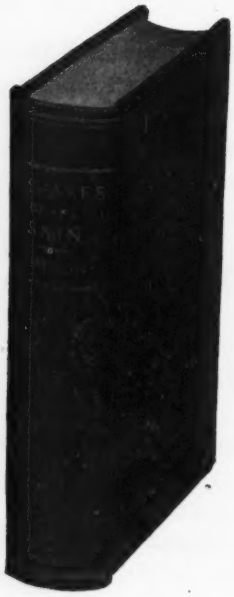

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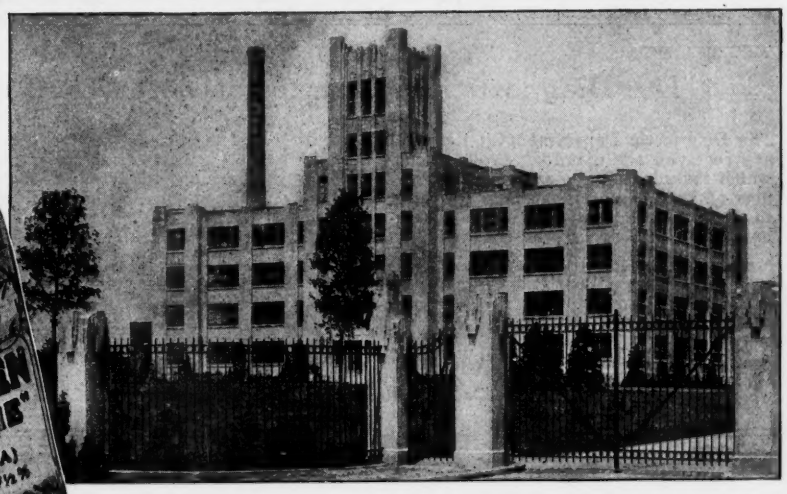

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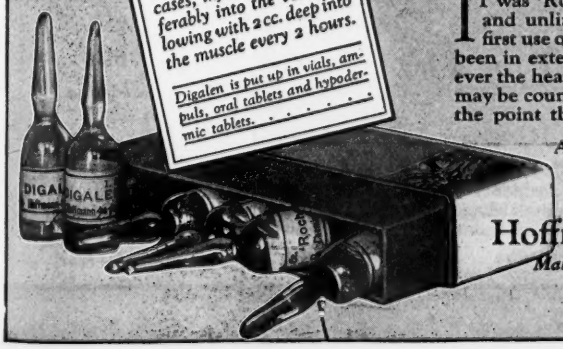

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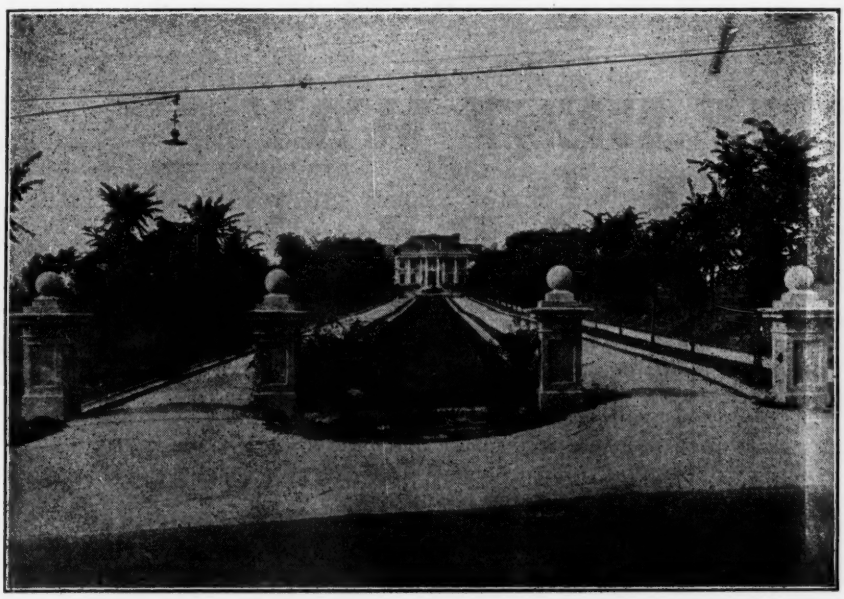

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The Treatment of Undulant Fever With Vaccine—Report of Ten Cases

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During the past two years a large number of undulant fever cases caused by *Brucella abortus* (Bang) have been reported occuring in various sections of the United States. In these case reports there is little or no mention of treatment.

Osler[1] and Stitt[2] state that some observers have secured good results with vaccine therapy. Cumston[3] advocated the use of *B. melitensis* vaccine in doses of 0.25 to 1.0 c.c. every ten days in chronic cases of undulant fever due to this organism. Giuffre[4] used a similar vaccine both intravenously and intramuscularly with success. He did not believe that there were any contraindications for its use. The course of the disease in his treated cases were shortened markedly, the average duration being from 9 to 60 days. The average duration in 125 cases recently reviewed by Hardy[5] was four months.

Liege and Castarian[6] used *B. abortus* vaccine with success in three cases of *B. melitensis* infection after a stock vaccine of *B. melitensis* had failed. Prausnitz[7] observed that *B abortus* vaccine in small doses seems to be a promising remedy. Keefer[8], however, failed to secure any benefit with vaccine in one case of *B. melitensis* infection occurring in Baltimore.

Although the literature contains many references of beneficial results following vaccine therapy the opinion is prevalent that this method of treatment is of little or no value.

Other attempts at specific treatment have been tried after symptomatic treatment was found of no value. Awe and Palmer[9] used milk injections successfully in three cases. Todd[10] used 20 c.c. of 1 per cent mercurochrome intravenously with success in two cases.

Realizing the close relationship between contagious abortion in cattle and hogs and undulant fever in man, it was thought advisable to prepare a vaccine from pathogenic strains of bovine and swine *B. abortus*. Cultures were obtained from the Jensen-Salisbury Laboratories of Kansas City, Missouri. A vaccine was made using five pathogenic strains of bovine origin and one strain of swine origin.

Case No. I. A girl, age 16, (a patient of Dr. L. L. Bresette), was withdrawn from school, November 24, 1927, with the complaint of severe fatigue, afternoon rise of temperature of 1°F, and a slight pulmonary hemorrhage. Physical examination of her chest at that time was essentially negative, also two *x*-ray examinations. She was regarded, however, as possibly having an early tubercular process and was confined to her bed for a period of six months, during which time she maintained a slight afternoon elevation of temperature. On June 10, 1928, she had a chill with a rise in temperature to 103°F. This was associated with muscular and articular pain, profuse perspiration, anorexia, headache, marked nervous depression, constipation and severe weakness. She was admitted to the hospital twelve days later with a temperature of 102°F, pulse 100, respiration 20. There were a few coarse rales at bases of both lungs with a small area of bronchial breathing at right apex. The spleen was not palpable. The tongue was coated.

Laboratory findings: urine, 1 plus albumin and few pus cells. Blood: R.B.C. 3,984,000; Hb. 65 per cent (Sahli); W.B.C. 2850, polys. 38 per cent, lymphs. 53 per cent, monos. 8 per cent, baso. 1 per cent. Malaria smears negative. Widal negative. Paratyphoid A and B negative.

Wassermann and Kahn negative. Blood culture negative. B.M.R. —12 per cent. Agglutination for undulant fever using *B. abortus* antigen positive, complete 1/1280, partial 1/2560.

Treatment: On July 10, 1928, she was given 0.25 c.c. mixed vaccine subcutaneously; July 11, 0.5 c.c.; July 12, 1.0 c.c.; July 14, 1 c.c., and July 16, 1 c.c. After the third injection there was a severe systemic reaction and the patient's symptoms became much worse. There was a marked local reaction from each dose leaving a local indurated area. Two of these areas formed abscesses and required draniage. After the third dose there was a marked subjective and objective improvement in the patient's condition. Temperature was normal on July 23. She was confined to bed for two weeks following and since that time has been entirely free of symptoms.

Case No. II. A salesman, age 44, (a patient of Dr. F. F. Campbell), on May 1, 1928, complained of headache, backache, associated with slight fever. At this time he was regarded as having "flu." These symptoms persisted, however, after treatment he developed very painful jaws and two teeth were extracted. On June 2, he had a severe chill, a temperature of 104°F. The chills became regular, occurring at 12 hour intervals, and were associated with anorexia, profuse perspiration, marked irritability, moderate headache, muscular and articular pain, nervous depression and marked constipation.

The physical examination was essentially negative. Spleen not palpable, joints not swollen. Chest clear.

Laboratory: Urine normal. Hb. 80 per cent (Sahli), R.B.C. 4,136,000; W.B.C. 5600, polys. 54 per cent, lymph. 40 per cent, monos. 6 per cent, Widal negative. Para-typhoid A and B negative. Wassermann and Kahn negative. Agglutination for undulant fever positive, complete 1/2560, partial 1/5120. The same titer was noted with *B. abortus* and *melitensis*.

Treatment: On July 13, 1928, after patient had received no relief, he was given 0.25 c.c. mixed vaccine subcutaneously; July 14, 0.5 c.c.; July 15, 0.75 c.c.; July 16 and 17, 1 c.c. The 0.5 c.c. dose was followed by a severe systemic reaction in which all his symptoms were exaggerated. The 0.75 c.c. dose gave only a moderate reaction and the two 1 c.c. doses mild reactions. The patient's symptoms were definitely relieved after the second dose. His temperature rapidly returned to normal. There has remained in this patient a residual intercostal neuralgia which has been distressing at times. This is not associated with any other systemic symptoms and he is able to do his work.

Case No. III. A woman, age 32, (a patient of Dr. E. A. Reeves), housewife, about May 1, 1928, complained of general malaise, backache, headache and slight fever. These symptoms became worse and she called her physician on May 17. Due to type of temperature, slight cough and loss of weight she was regarded as possibly a case of tuberculosis. She was seen by another physician on July 12, who suspected undulant fever. Her symptoms could be summarized by frequent chills followed by a rise in temperature, headache, free perspiration, poor appetite, marked irritability, severe constipation, muscular and articular pains.

Physical examination was essentially negative. The spleen was not palpable, joints not swollen and there were a few rales over right upper chest.

Laboratory: Urine normal. Hb 62 per cent (Sahli), R.B.C. 3,632,000, W.B.C. 5650, polys. 49 per cent, monos. 5 per cent. Widal negative. Para-typhoid A and B negative. Wassermann and Kahn negative Agglutination for undulant fever positive, complete 1/1280, partial 1/2560.

Treatment: This patient first refused vaccine therapy on July 14. Her symptoms became worse and on August 2, with her consent, 0.25 c.c. of a mixed vaccine was given. This was followed by a mild general reaction and on August 3, she was given 0.5 c.c. Following she had a rather severe systemic reaction with rise in temperature to 104°F. Two 1 c.c. doses were given on August 6 and 8, following which there was only a mild reaction.

The result in this case was most favorable. Her temperature rapidly returned to normal, all of her symptoms were relieved and in the opinion of her physician she was definitely cured after three months of the most distressing illness.

Case No. IV. A man, age 34, (a patient of Dr. L. D. Mabie), a hog butcher in a packing house, for 16 years, became rather acutely ill on December 12 with chills and fever of 103°F. During the following month he had moderate anorexia, profuse perspiration, slight irritability, no cough, severe headache, painful muscles of calves of legs, moderate nervous depression, marked constipation, gums sore and bled easily. On January 10, he began to bleed from nose, petechia appeared on body surface, bleeding from gums and nose persisted until he was admitted to the hospital bleeding profusely with temperature of 103.2°F, respiration 22, pulse 114. Anterior and posterior packs were placed in his nose with little relief. The spleen was not palpable.

Laboratory: Urine contained large amounts of macroscopic blood. Hb. 40 per cent (Sahli), R.B.C. 2,600,000, W.B.C. 6125, polys. 48 per cent, lymps. 47 per cent, eosin 1 per cent, monos 4 per cent, Widal negative. Para-typhoid A and B negative. Wassermann and Kahn negative. Agglutination for undulant fever positive, complete 1/5120, partial 1/10240. Blood platelets 16,000, clotting time three minutes. Bleeding time markedly prolonged.

Treatment: On January 15, 0.25 c.c. mixed vaccine was given; January 16, ½ c.c., after which the bleeding stopped. This patient showed a striking relief of subjective symptoms. January 17, ¾ c.c. and January 18, 20, 22, 1 c.c. was given. On January 18, after the bleeding had ceased, he was given 500 c.c. citrated blood because of his severe secondary anemia. The patient was discharged from the hospital on January 26 with normal temperature.

Five weeks later there was a slight recurrence of fever. He was then given a course of four 1 c.c. doses of vaccine, following the last one there was a severe systemic reaction, after which his temperature returned to normal and he returned to his work.

Case No. V. A man, age 49, (a patient of Dr. P. T. Bohan), a banker. Probable onset was the summer of 1928 and was first seen by attending physician November 14, 1928. Diagnosed undulant fever, November 27, 1928. Summary of symptoms during course of disease was, temperature range 97°F to 103°F, anorexia severe perspiration at times, irritable, bronchitis, severe headache, coated tongue generalized pain, marked nervous depression. Not constipated.

Laboratory: Hb. 99 per cent, R.B.C. 4,940,000, W.B.C. 6000, polys. 58 per cent, lymphs 36 per cent, monos. 6 per cent, Widal negative. Wassermann negative. Agglutination for undulant fever positive, complete 1/640, partial 1/1280.

Treatment: Mixed vaccine in doses of 0.25 c.c. and 0.5 c.c. was given subcutaneously on December 12, 17 and 19. A marked local and slight general reaction was noted after the last two doses. The patient has had no fever since the last dose and has been going to his office every day.

Case No. VI. A man, age 65, (a patient of Dr. H. E. Marchbanks, Pittsburg, Kansas). Probable date of onset was November 29, 1928, and diagnosed undulant fever by his physician December 19, 1928. Summary of symptoms during course of the disease was, temperature range 98°F to 102.8°F, slight anorexia, slight perspiration, slight cough, mild headache, right hip painful, slight nervous depression, frequent chills followed by weakness. Physical examination negative except temperature.

Laboratory: Hb. 80 per cent, R.B.C. 4,340,000, W.B.C. 9500, polys. 62 per cent, lymphs. 25 per cent, monos. 13 per cent. Widal negative. Para-typhoid A and B negative. Wassermann negative. Agglutination for undulant fever positive, complete 1/1280.

Treatment: A mixed vaccine starting with 0.25 c.c. and increasing 0.25 c.c. until 1 c.c. dose was given from January 5 to January 13, 1929. Some general reaction followed each dose with a severe reaction after the fourth dose.

There was definite relief of symptoms following the 0.5 c.c. dose and the tem-

perature was normal on the fourth day after treatment was discontinued.

Case No. VII. A nurse, age 40, (a patient of Dr. R. R. Coffey). During July, 1928, complained of general weakness, slight cough and afternoon elevation of temperature. These symptoms persisted and she was first seen by a physician on September 12, 1928. At this time she was regarded as having tuberculosis, although her physical findings and *x*-ray studies were indefinite. She was confined to the hospital for complete rest for four months, during which time her symptoms were, moderate anorexia, occasional chills, followed by profuse perspiration, marked nervous depression, constipation and a temperature range of 98.6°F to 102°F.

The physical findings were essentially negative. The spleen was not palpable, a few fine rales were heard over chest.

Laboratory: Urine negative. Hb. 80 per cent, R.B.C. 5,660,000, W.B.C. 7375, polys. 48 per cent, lymphs. 47 per cent, monos 4 per cent, eosin. 1 per cent. Widal negative. Para-typhoid A and B negative. Wassermann and Kahn negative. Agglutination for undulant fever positive, complete 1/160, partial 1/320.

Treatment: Six doses of a mixed vaccine were given between January 12 and January 26, 1929, with 0.25 c.c. and increasing 0.25 c.c. until 1 c.c. dose was reached. Following the third dose (0.75 c.c.) there was a severe systemic reaction which subsequent doses did not produce.

Due to a slight elevation of temperature 99.6° on February 3 she was given 1 c.c. of swine *B. abortus* vaccine. Since this time her temperature has been normal. After the severe reaction of the third dose this patient's symptoms were definitely relieved. There was a local indurated area at the site of each innoculation. These have persisted but do not cause any discomfort.

Case No. VIII. A woman, age 39, (a patient of Dr. F. L. Zeloske). Probable onset, fall of 1928. First seen by her physician February 3, 1929, when she had a chill and temperature of 104°F. Diagnosed undulant fever February 12, 1929, after admission to hospital. Her symptoms summarized, were, temperature range 98° to 105.4°F, severe anorexia, severe perspiration, moderate irritability, no cough, no headache, slight generalized pain, moderate nervous depression, severe constipation and frequent chills.

Physical examination essentially negative. Spleen not enlarged, tongue moderately coated.

Laboratory: Hb. 91 per cent (Sahli), R.B.C. 4,900,000, W.B.C. 5025, polys. 54 per cent, lymphs. 39 per cent, monos. 6 per cent, Widal negative. Para-typhoid A and B negative. Wassermann and Kahn negative. Agglutination for undulant fever positive, complete 1/1280, partial 1/2560.

Treatment: A swine vaccine starting with 0.25 c.c. and increasing 0.25 c.c. daily for four days, was given February 14 to February 17, 1929. Temperature was normal for three days and then ran to 100.2°F and on February 21 1 c.c. of mixed vaccine was given intramuscularly following which there was a slight rise in temperature. The chills ceased after the 0.75 c.c. of vaccine. She was discharged from the hospital on March 3, 1929, and other than the ordinary malaise following a severe infection, which lasted for two weeks, she is well and able to do her work.

Duration of disease from onset of vaccine therapy was nineteen days.

Case No. IX. A woman, age 43, (a patient of Dr. C. E. Coburn). Had a slight chill with fever on February 18, 1929, after this she did not feel well and called her physician on February 25, 1929. A diagnosis of undulant fever was made on March 6, 1929. Summary of her symptoms was, temperature range 98° to 101.4°F, slight anorexia, slight perspiration, slight cough, severe headache, no generalized pain, slight nervous depression and slight constipation.

Physical examination essentially negative. Tongue coated, spleen not palpable.

Laboratory: Hb. 82 per cent, R.B.C. 4,570,000, W.B.C. 5825, polys. 54 per cent, lymphs. 42 per cent, baso. 1 per cent, monos. 3 per cent. Widal negative. Para-typhoid A and B negative. Wassermann and Kahn negative. Agglutination

for undulant fever positive, complete 1/1280, partial 1/2560.

Treatment: Mixed vaccine in doses of 0.25 c.c. was given daily for four days. Following the second 0.5 c.c. dose the temperature elevated to 103.2, this again occurred after the 1.0 c.c. dose March 11, 1929. This case could be classified as the ambulatory type of the disease with the outstanding symptoms of a severe headache. Following the second dose the headache disappeared. She was discharged from the hospital March 14, 1929, with temperature 99°F. There persisted a slight elevation of temperature from time to time as high as 99.6° for two weeks and to date there has been no recurrence of chills or headache.

Case No. X. A woman, age 39, was admitted to the hospital with complaint of pain in back of neck and upper right abdomen, severe nervousness, and cries easily. These symptoms followed "flu" during January, 1929. Lost 20 pounds in weight. Markedly constipated, no cough. Pain radiated to back and toward bladder. Had been diagnosed as having gall stones, kidney stones and appendicitis.

Physical examination essentially negative, except for exaggerated deep reflexes.

Laboratory: *x*-Ray studies of gall bladder and kidneys were negative. Urine negative. Hb. 85 per cent, R.B.C. 4,850,000, W.B.C. 6075. polys. 52 per cent, lymphs. 42 per cent, monos. 4 per cent, baso. 1 per cent, eosin 1 per cent. Wassermann and Kahn negative. Agglutination for undulant fever positive, dilution 1/320.

Treatment: This patient was treated with vaccine because it was believed that the neuritis and neurasthenic symptoms were a residual of undulant fever.

She was given four 1 c.c. doses of mixed vaccine, intramuscularly and there was a slight reaction after the third dose. She was observed in the hospital for one week and discharged definitely improved.

PREPARATION OF VACCINE

Five pathogenic strains of bovine and one of swine *Brucella abortus* were mixed in equal quantities after being washed from agar slants with sterile saline. The suspension was standardized with a McFarland nephelometer, No. III, and then placed in a water bath at 60°C for two hours, recultured for sterility and placed in sterile vials. The number of organisms per c.c. was approximately six billions. The preservative used was 0.5 c.c. of 10 per cent phenol, to each 10 c.c. vaccine.

DOSAGE

The dose given in the above cases was arbitrarily started at 0.25 c.c. and increased 0.25 c.c. with each dose until the full dose of 1 c.c. was given. These were administered on consecutive days unless some symptom seemed to contraindicate.

At no time was more than 1 c.c. used. Subcutaneous injection was used in each of the first seven cases and intramuscular injection in the last three cases. Guiffre[4] has advocated intravenous injection of 0.2 to 0.4 c.c. although we have not tried this method. As few as three and as many as eight doses were administered.

REACTIONS

A general reaction occurred after the second 0.5 c.c. dose was used in three cases, after the third 0.75 c.c. dose in three cases and after the fourth 1 c.c. dose in four cases. These reactions are fairly severe and are characterized by a general increase in the patient's subjective symptoms. After the initial severe reaction subsequent doses seem to elicit only mild or no reactions. It seems advisible to continue treatment until there is a definite severe reaction.

At the site of injection there has appeared an indurated area which causes the patient slight discomfort and is slow to disappear. The cause of this is indefinite, the possibility of course of an allergic phenomenon as well as a marked toxicity to the tissues of the *Brucella abortus* organism has been suggested.

COMMENT

It is the opinion of the twelve different attending physicians in the reported cases that the vaccine used acted in a specific manner. In the first three cases no recurrence of symptoms has appeared after nine months.

It has been observed in the study of these cases that the nervous symptoms

are the slowest to respond and although they are clinically cured there has remained slight "neurasthenic" manifestations. Case No. II has a residual intercostal neuritis which has been troublesome at times.

The clinical varieties of the disease treated have been acute undulating type, ambulatory type, and one case (No. IV) of acute malignant type. Little difference has been noted in results of treatment in the different varieties although this series is too small to draw any definite opinion on this point.

During the course of the disease in the cases reported numerous drugs and biologicals were used with only slight or transitory benefit.

SUMMARY

1. Ten cases of undulant fever are reported in which marked improvement associated with complete disappearance of symptoms followed the use of a vaccine prepared from pathogenic strains of bovine and swine *Brucella abortus.*

2. One case is reported of the severe malignant type of the disease associated with a severe toxic purpura hemorrhagica.

BIBLIOGRAPHY

1. Osler and McCrae, The Principles and Practice of Medicine, ed. 9 N. Y. Appleton & Co.
2. Tice, Practice of Medicine, 4:99-108.
3. Cumston, C. G. The Treatment of Malta Fever; Med. J. & Rec. 121:219-220 (Feb. 18) 1925.
4. Giuffre, M., Vaccinotherapy in Mediterranean Fever. La Pediatria, 35: 345-357 (April) 1927.
5. Hardy, A. V., Undulant Fever, J.A.M.A. (March 16) 1929.
6. Liege and Castarian, Serotherapy in Infection with Brucella Melitensis, Foreign Letters, J.A.M.A. (Feb. 23) 1929.
7. Prausnitz, Carl, Infection of Human Beings with Bang's Bacillus, Med. Klin. 25:135-136 (Jan. 25) 1929.
8. Keefer, C. S., Malta Fever Originating in Baltimore, Bull. Johns Hopkins Hospital 35: 6-14 (Jan.) 1924.
9. Awe, C. D., and Palmer, H. D., Malta Fever, Am. J. Med. Sc. 176:837-843 (December) 1928.
10. Todd, M. L., Two Cases of Malta Fever Treated with Mercurochrome, Military Surg., 91: 34-35 (July) 1927.

Differential Diagnosis of Difficult Micturition

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In a review of this subject I have deliberately chosen the term "difficult micturition" instead of the term "dysuria" because of the different interpretations of this latter term by different men under the same conditions. Dysuria means painful, difficult urination; and with such a meaning it is indefinite because such a symptom complex is not always present. The term dates back into early urology at which time there was a less definite understanding of urological pathology and accompanying symptoms.

The act of micturition may at any time during ones life be attended by more or less difficulty. In this consideration today, pain and frequency do not necessarily enter, because quite often there is no pain and frequency is not above the normal.

Disturbances in the act of micturition in a conscious rational person may be caused by a disturbance in any one of the composite requirements for the act. The act of micturition in the normal requires an expulsive force of the bladder and a clear channel in front of it. The thinning of the walls of the bladder by dilatation or the sclerosing of the walls of the urethra or nervous incoordination contributes in its own degree to the effort involved in the emptying the bladder of its accumulated contents. It is not an uncommon happening in our experience to find the diagnosis of disease with the symptom of difficult micturition, placing itself under three headings and these headings being arrived at in direct relationship to the age of the patient.

Heading No. 1: The diagnosis of "cystitis" is invariably made with the symptom of difficult micturition in women and children.

Heading No. 2: The diagnosis of "stricture" in young male adults.

Heading No. 3: The diagnosis of 'prostatic hypertrophy" or "calculus" in adults or old age.

This, of course, is fallacious, the other conditions that cause difficult micturition being not only of serious importance but are very frequent in their occurrence and their frequency and importance make demands for diagnosis. We therefore feel it timely to call attention to the fact of the possibility of these additional pathological conditions.

The symptom, as its name implies, is characterized by an appreciable slowness in starting the stream but the slowness may be in any degree from a slight hesi-

tation to the waiting of several minutes for the first drops of urine. There is not only a slowness in starting but a diminution in the size and character of the stream. It may be only a drop at a time, intermittent, a very small stream, or any degree up to normal. The character of the stream may be twisted or forked. One should not ever mistake the so-called "bladder shyness" for difficult micturition. Each of us has at various times come in contact with this type and I shall refer to it later. Again, the urinary stream may represent a mere dribble at the meatus and being so weak may take several minutes at several successive times to empty the bladder. There is often in addition to slowness in starting, a perceptible feebleness of the flow. There may be relatively no force or projection of the stream and it is with difficulty that the patient keeps from soiling himself as the urine drops from the meatus.

In the more extreme cases of difficult micturition, the patient is compelled to bring all his additional resources to his aid; chief among these are his abdominal and rectal muscles. These muscles are brought into play by the act of straining and are usually of great assistance. The diagnosis of diseases with the symptom of difficult micturition is best made by taking into consideration the various portions of the tract involved and the pathology of that part that may affect urination. This division would naturally resolve itself into the three portions necessary to the expulsive process in the ridding of the bladder of its contents; the vesicle area, the infra-vesicle area, and the urethral area. While in school we learned the value of outlining and I think I shall call it into play here.

I shall state as a primary point in differential diagnosis in cystitis that the cystoscope is an absolute essential because in 95 per cent of cases cystitis is a symptom instead of a disease of entity; for this reason a thorough cystoscopic diagnosis is an essential.

In acute cystitis there is difficult micturition, dysuria or pain, usually blood, the bladder muscles contract spasmodically, an increasing pain extending along to the neighboring organs, irritation of the lower tract including the sphincter, producing a transient functional obstruction.

- VESICLE...
  - Cystitis.... acute / chronic / TBC
  - Tumor
  - Ulcers
  - Stones
  - CNS.....
    - Post fossal tumors
    - Tabes
    - Cerebral
    - Habit
      - Teachers
      - Preachers
    - Fatigue
    - Hysteria
    - Psychic—fixed idea
    - Reflex: Trauma / Operation
    - Toxic: Alcoholism / Drugs / Diabetic coma
- INFRA-VESICLE...
  - Cicatricial neck
  - Prostatism..... Malignant / Hypertrophy / Adenoma / Abscess / Infection
  - Veru montanitis
  - Retention cysts
  - Diverticula
- URETHRAL
  - Tumors
  - Foreign bodies
  - Strictures
  - Cowperitis

In chronic cystitis, the difficult micturition runs parallel with the pain and other parts of the symptom complex. The infection has traveled into the subcutaneous or interstitial tissue and although the difficult micturition is severe, the urinary findings are small in comparison. In the chronic cystitis, there is also a recurrence and intermittence.

In tuberculosis of the bladder again we find the difficult micturition is out of keeping with the urinary findings. Disturbance in the act of urination is present in about 75 per cent of all tuberculosis of the urinary organs. There is besides frequency, pain and hematuria; the hematuria being often at an early period without the pain and frequency. Cystoscopy and urine analysis reveal that the symptoms are out of proportion to the amount of involvement.

Ulcers: Independent of calculi, or when they are present, ulcerations ap-

pear on the floor of the bladder and are covered with a fibro-purulent exudate mixed with phosphatic deposits. In these cases there is always a difficult micturition caused by a protective effort on the part of the bladder to keep from further injuring the ulcer.

The amount of difficulty in cases of tumors of the bladder depends solely on the location of the tumor. If it lies near the bladder neck, it will act as an obstructive factor. A painless hematuria is nearly pathognomonic of bladder tumor in the presence of obstruction. Again is the diagnosis made by the cystoscope.

Stones: In stones the difficulty is as in tumors, but the pain accompanying is more severe and the urine shows a great deal more pathology. There is hematuria, pain, much infection, debris and mucus in the urine with the same intermittent obstruction to the outflow.

Under CNS the division becomes enormous and although each of them does not often appear, the very quantity of the CNS possibilities represent a factor that must be taken into consideration. Most of them are of grave importance, at least they represent the possibilities of a needless operation if not considered. They all represent nervous phenomena and are influenced not in the least by the mechanical reasons heretofore stated. I will simply mention post-fossal tumors.

Tabes: Each of us knows of this condition but some of us do not realize the commonness of its occurrence nor do we realize the possibilities of its occurrence coincidental with hypertrophied prostate and the necessary difference in the prognosis in the event it does.

Cerebral: I shall simply mention meningitis and hemorrhage.

Habit: As in preachers and teachers and other persons that over periods of years allow the bladder to remain over full with a subsequent dilatation and loss of muscular tone which causes difficult urination.

In undernourished and fatigued persons there is often encountered a difficulty in urination, but there is no mechanical reason and it is probably not permanent.

Hysteria: In this condition there is truly a loss of co-ordination applied to the bladder as there is in other parts.

Psychic: Persons often develop through life a "fixed idea", as for instance, they cannot urinate in the presence of another. In one's office with a patient of prostatic age and "bladder shy", one of our chief symptoms for porstatism may be truly found, that is, slowness in starting the stream or inability to urinate or a residuum if one does not recognize the possibility of the CNS "fixed idea."

Reflex: Difficult micturition may be caused reflexly as following injury externally or by trauma during operation.

Now under the second general heading, we shall only interest ourselves with three portions, namely: Cicatricial neck, prostates in general, and veru-montanitis. Cicatricial neck quite often follows a severe cystitis of any source with an increase in tissue growth and a cicatricial formation at the neck; also, in postoperative prostatics there is always infection, healing by second intention with a cicatrix formation at any time from the first month to the first year, simulating in symptoms a recurring hypertrophied prostate with an accompanying acute cystitis.

Prostate. The difficult micturition of the hypertrophied, malignant, adenomatous, abscessed, or infectious prostate I need only mention. I am sure I have never been to a meeting that does not cover some phase of this subject.

Veru-montanitis: This is an enlargement by engorgement and granulation of the veru in the prostatic area which gives rise to symptoms of difficult urination and according to age, the patient is usually diagnosed as stricture or prostatism. It is caused by chronic vesicular infection, by withdrawal, or continued masturbation and is diagnosed by the urethroscope and by its accompanying sexual symptoms.

Under the last general heading, the urethra, we will consider first, tumors. These very often bleed, obstruct intermittently, become infected, and act in many ways as a stone. Only by the urethroscope and *x*-ray can they be definitely diagnosed.

Foreign bodies in the urethra are a more common pathology than is usually suspected and quite often a lot of unnecessary trouble and work can be eliminated by a careful history in cases of acute obstruction with a hyper-acute history.

Cowperitis: Acute or chronic cowperitis can so obstruct the urinary canal as to obstruct the outflow and quite often is mistaken for stricture.

Stricture: Some tight strictures of the urethra may present very few symptoms while others show marked interference with the stream; various degrees of retention may be sponsored by a slight tight band in the posterior urethra. Although the character of the stream, its irregularity and lack of force, does not necessarily indicate a stricture, one usually finds the stream is narrow, comes out with little force, and *has dribbling after completion.* In stricture retention, the retention is short lived and is recurrent with immediate relief by reduction of inflammation.

Summary: 1. One cannot arbitrarily make a diagnosis by age classification.

2. The various conditions, other than the usual are of extreme importance because of their bearing upon operation type and prognosis and must be diagnosed.

3. Obstruction in old age does not mean prostatism only.

4. Cerebral or cord lesions may be present in the cases of prostatism and should be looked for in each case.

5. A very careful, well-obtained, history is of the most importance.

6. A diagnosis is not necessary nor should it be made until after repeated examinations, including cystoscopy or urethroscopy as indicated.

CONCLUSIONS

In this necessarily brief and incomplete review of the symptom of difficult micturition, I have endeavored to lay stress on the varied conditions presenting this symptom and also the importance they may assume. My excuse for presenting these facts so familiar to all urologists is that enough importance is not attached to the even more important conditions of the urological tract that present this particular symptom and that our profession as a whole is too prone to accept a diagnosis in urology by an age classification. Physical examination, history taking, and early symptoms are not often enough taken into consideration so that mistaken diagnosis is more or less constantly being made to the embarrassment of both the doctor and the patient as to end result. In no class of diseases is there more distress, suffering, and embarrassment than that caused by lesions of the genito-urinary tract; and in no class of cases can a more correct diagnosis be made or more accurate relief be afforded. It is only by the constand reiteration of these facts that better results can be obtained by early recognition and treatment; and I feel it my duty to the profession, to the laity, and to myself to try to keep these facts alive.

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Studies on Influenza

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For the experimental scientist who is especially fond of his hobbies, and for the business man who puts money above obligation to society, influenza has been the proverbial hen that laid the golden egg. For the first has cluttered the literature with many so called brilliant discoveries and with statistics of no value, and for the second, it has offered an opportunity for a profitable financial exploitation of the laity as well as many in the profession.

On the other hand, that large group of experimental scientists, clinicians and others who have earnestly sought to solve the mystery of the cause of influenza have been rewarded only by failure and discouragement except for some who feel that they have shown or that others have shown to their satisfaction that either *Pfeiffers bacillus, B. pneumocintes* or some other organism is the cause of influenza and for the interesting findings of the epidemiologists.

The clinical knowledge of influenza goes back probably into antiquity. Leichtenstern[1] who wrote a remarkable mono-

graph on influenza following the 1889 epidemic, cites possible epidemics back to 412 B. C. He begins his tabulation of outstanding epidemics with that of 1510 which was followed by another extensive epidemic of 1557 and a great pandemic in 1580. In the 17th century he says the reports were very scanty but in 1627 a great epidemic started in North America and spread to South America and the West Indies. Two extensive epidemics and five pandemics occurred during the next century. It is interesting to note that three of these pandemics apparently started in Russia, one in China and one in North America and spread over the entire world. The 19th century saw an extensive epidemic in 1827 in Russia and Siberia, a series of three pandemics from 1830 to 1833, starting first in China, the second and third apparently starting in Russia. The years of 1836-37, 1847-48 and 1889-90 were periods of great pandemics. Interspersed between these were smaller epidemics and outbreaks which were regarded by many as influenza, all of which coincides with the clinical experience of the present generation.

Concerning these and the two concepts which prevailed at the end of the 1889-92 epidemic, Leichstenstern says:

"Should, however, the numerous influenza outbreaks and epidemics which A. Hirsch has tabulated in his historic and exhaustive work prove to be one and the same species of influenza—a possibility that cannot be simply neglected—influenza would show itself, in respect to its epidemiologic features, as an exceedingly variable and protean affection. It would be possible, under the conditions mentioned, to give the following epidemiologic definition of influenza:

"Influenza is a specific infectious disease and usually arises epidemically, but it is, in fact, enidemic over all the world (sporadic cases), although in any particular district or place years and decades may pass before the disease shows any great epidemic development. An epidemic of the disease is demonstrable nearly every year in some part of the world. There occurs then, from time to time, starting in some part or center, or from several places simultaneously, from unknown causes, an enormous increase in virulence of the specific micro-organism, with acompanying increase of contagiousness. These are the periods in which influenza spreads in the form of a mighty epidemic over entire countries, a hemisphere, or the entire earth. Our common endemic 'influenza' or 'grip', which generally occurs sporadically or as a mild epidemic, belongs to the same species of disease as the world pestilence, influenza. It is, however, less virulent and the specific cause has less vitality."

Leichtenstern contrasts his own personal concept of influenza with that of A. Hirsch given above by thus continuing his discussion:

"For the present, until a final decision is arrived at by means of bacteriology, we maintain that influenza nostras and pandemic influenza are just as distinct diseases as are cholera nostras and Asiatic cholera. According to this view, we divide the diseases designated as influenza as follows:

1. The pandemic influenza vera, due to the bacillus of R. Pfeiffer.

2. The endemic-epidemic influenza vera, which develops after a pandemic from the residual germs (bacillus of R. Pfeiffer). The duration of this endemic stage of influenza vera may last several years in individual districts.

3. The endemic influenza nostras s. notha, pseudo-influenza, catarrhal fever, vulgo grippe, a disease sui generis. The micro-organisms of this disease are as little known at present as are those of cholera nostras."

Relative to the epidemiological conclusions which appear in Leichtenstern's monograph the following strikingly modern deductions may be summarized:

1. The appearance of true pandemics at considerable intervals of time followed by one or more waves of small epidemics that spread more slowly and have a lower morbidity and with frequently a greater mortality.

2. The apparent relationship of the spread of pandemics with modes of communication and travel with some exceptions that are difficult to explain.

3. The extensive affection of the inhabitants in the locality of outbreak.

4. The entire independence from wind and weather from season and climate, etc.

5. Disproportion between enormous morbidity and remarkably small mortality of pandemics.

6. The uniformity with which all ages and occupations are affected.

7. That influenza bears no relationship to diseases of the lower animals.

8. That it is not water born.

9. That it is due to a specific microorganism entering the body through the respiratory tract.

10. That the incubation period is usually one to three days.

11. That immunity to influenza is of relative short duration.

TERMINOLOGY

The nomenclature of the disease has been varied, he calls attention to such interesting names as the following—catarrhus epidemicus, tussis epidemica, contagious catarrhal fever, horion (1411 France) "lightening catarrh" (1782), "Gallant" and "fashionable disease" (1709-32) "Sheeps cough" (1580), the term "coqueluche" first applied by the French to influenza in 1578 was later transferred to whooping cough. It has also been named after various countries where it was supposed to originate such as Chinese, Russian, Spanish and Italian catarrh. Relative to the terms "influenza" and "grip" he makes the following statesments:

"The term influenza (influxus) was first applied to the disease in the epidemic of 1743 by Pringle and Huxham. The word points to the causation of the disease, 'influence of cold,' 'influenze di freddo, or 'influence through atmospheric phenomena.' Even Ch. Calen (1759) makes it depend on 'ab occulta quadam coeli influentia.'

"The word 'grip' originated simultaneously with the name influenza in the year 1743: but its birthplace was France, where, up to the present time, the disease has had only this enviably convenient name. The word is derived from 'agriper,' to attack, or from 'gripper,' to catch, to snatch, and perhaps originated in an analogous manner to the words lightning catarrh and horion. The Slavonic form of the word (chypka-hoarseness, J. Frank Eiselt) has not yet been proved to be an earlier name for the disease. Grant (1782) relates that the name is derived from an insect called 'la grippe,' which at that time in Europe was generally considered to be the cause of the disease (compare section on Influence of Meteorologic Conditions)."

BACTERIOLOGY OF INFLUENZA

In regard to the bacteriology of influenza, Leichtenstern's remarks read as if written only recently and for the most part probably to the point even though published over thirty years ago:

"The rapid distribution of the pandemic immediately led the bacteriologists of all countries to investigate and try to discover with the microscope the new germ, the specific cause of the disease. There was a veritable plethora of reports produced regarding the bacteriologic findings in the various secretions of influenza patients, especially in the pneumonic and pleuritic exudates. In every case it was previous well-known pathogenic cocci (streptococci, staphylococci, pneumococci, occasionally also Friedlander's bacillus) which were found, either singly in pure culture or in combination with each other.

"In some places, as Vienna, Strassburg, etc., it was principally the *Diplococcus lanceolatus* which was found in the pneumonic areas, in the sputum, and in the otitic and meningeal pus, while in other places, like Bonn, Paris, etc., streptococci were usually found. All the expert bacteriologists correctly interpreted their findings at that time in considering the above named cocci as of only secondary significance. Only one observer was so far misled by the frequent presence of the streptococci as to believe himself justified in proclaiming the *Streptococcus pyogenes* as "the most probable exciting cause of influenza." This attempt to identify the causa morbi, based chiefly upon the presence of streptococci in the inflamed lungs of influenza patients, is all the more incomprehensible since long before the outbreak of influenza it was well known that streptococci were frequently found in the mixed infections of various forms of, and

particularly of croupous, pneumonia (Naunyn, 1887), but also that these organisms probably possesed the power in themselves of causing pulmonary inflammation.

"The historic micrococci which O. Seifert first found in a small 'influenza' epidemic of 1883, judging by description, were probably streptococci. Some observers who found previously known pyogenic cocci, nevertheless wanted to consider them, on account of unimportant tinctorial or cultural peculiarities, as a variety peculiar to influenza. But all these observations, as well as those of a few 'specific varieties of bacteria' claimed to have been found at that time, some being cocci, other bacilli or diplobacilli (Teissier), and even some flagellata, proved to be fallacious or without significance. Thus, the very promising bacteriologic investigations of influenza during the years 1889-1892 produced completely negative results, but the energy applied to the investigations was not wasted, since the results showed that in the various pathologic conditions produced by influenza, especially in the pneumonic and pleuritic exudates, simultaneous or secondary infection by the well known pyogenic and pneumonia-producing agents plays an important role.

"The hope of finding the specific cause of influenza appears to have been universally abandoned, when R. Pfeiffer, in the beginning of the year 1892, published his sensational announcement 'regarding the cause of influenza,' a discovery which found recognition and substantiation by the bacteriologists of all countries. In the following description of the most important characteristics of the influenza bacillus we adhere strictly to the account given by its discoverer."

These remarks are of especial interest when it is recalled that when the great pandemic of 1918 began, the scientific world almost uniformly accepted Pfeiffer's bacillus as the cause of influenza. Soon a wave of doubt and skepticism swept over the country, a violent reaction against accepting this organism as the etiological factor grew rapidly due to the inability of public health workers, pathologists and bacteriologists to confirm their early and accepted beliefs. Immediately the reincarnation of O. Seifert appeared in several individuals and streptococci and diplococci were again announced as having been absolutely and positively shown to be the cause of influenza. Vaccines were recommended and I am told that a large city in the United States wasted $25,000 upon such vaccines in an honest and commendable endeavor to head off the ravages of this disease.

I mention this as a specific biological experiment on a large scale which should answer the question of the value of prophylactic streptococcus vaccines in preventing influenza. The recent attempt to foist vaccines made of Pfeiffers bacillus upon the public has been adequately dealt with in editorials in the A.M.A.[2,3]

It is not surprising that the cause of influenza is not definitely established. The limitations of our methods of staining, isolation and cultivation are brought to our attention continually. Our present methods had only been given to the world a few years before the great pandemic of 1889 and the great pandemic of 1918 was the first real opportunity to make extensive studies after that because influenza can only be recognized with absolute certainty in large epidemics and especially pandemics. Mumps and measles and the common cold we have with us all the time and yet do not know their cause.

In addition to giving us solid media in 1882, Koch added to the suggestions of Henle and gave us a set of laws that should be fulfilled in order to settle the question of the etiological relationship of an organism to a specific disease.

1. The organism must be found quite uniformly associated with the disease.
2. It must be isolated in pure culture.
3. It must be transmitted to a susceptable animal, in a suitable manner and reproduce the disease.
4. You must be able to recover the organism in pure culture.

Our experiences with influenza have certainly demonstrated that these laws are not fool proof and in Rivers[4] work on filterable viruses he has called attention to the fact that it is not necessary to

fulfill all of them to learn and accomplish a great deal about diagnosis and even preventing some diseases. This he has illustrated by the work of Pasteur on rabies.

In regard to Pfeiffer's bacillus as the cause of influenza, Rivers remarked at one of the national meetings that there was probably only one true Pfeiffer's bacillus and that was the one Dr. Pfeiffer isolated and failed to adequately describe. The significance of this remark is certainly made manifest when one peruses the laboratory findings published during the 1918 epidemic. Apparently many workers regarded any and all Gram negative organisms appearing in sputum smears as Pfeiffer's bacillus. Culturally one well known bacteriologist considered Gram negative bacilli producing acid and gas in dextrose as Pfeiffer's bacillis as well as other organisms that did not. To my mind the work of Jordan[5] and also of Rivers[6] brought some order out of chaos. They offered definite criteria defining *B. influneza* for the first time and thus made possible statistical studies and experimental investigations of this organism.

Three other points that have been repeatedly overlooked in attempting to fulfill the first postulate are:

1. The normal bacterial flora might be expected to be present in all cases and should be excluded.

2. Secondary invaders, even though pathogenic, are not necessarily the primary cause.

3. The extreme fundamentalist doctrine that the "antigenic plasma" of the cell, plus the "mirror reaction" is the only way to identify an organism, was considered quite orthodox until recently. I am not denying the value of the agglutination reaction but the extreme view that an organism is represented by only one antigenic unit is biologically unsound and has held back fruitful investigations. The pitfalls of the agglutination reaction have been recently reviewed by Hooker[7] in a discussion of streptococci.

In regard to the second postulate, that of isolating the etiological factor in pure culture, I have already called attention to the limitation of our technique. The third postulate, that of reproducing the disease has lead to much confusion. In the first place many have apparently assumed that influenza is essentially a broncho pneumonia and hence if they can produce an experimental pneumonia in rabbits or guinea pigs then they have fulfilled this requirement. If other methods failed, they injected broth cultures into the trachea and were blissfully happy at producing pneumonia. The question whether rabbits or guinea pigs are susceptable to the organism of influenza, being thus settled in spite of the fact that no supporting evidence seems to exist and that the incidence of pneumonia in human beings is frequently under 5 per cent of those affected. Failure to appreciate that rabbits are not the homologue of the human has led many well trained and able clinicians to abandon their knowledge of clinical medicine and base diagnosis of gastric ulcer upon tooth extraction, rabbit inoculation and the demonstration of gastric hemorrhages in the gastric mucosa of rabbits. Another example where the postulate of Koch is misunderstood and where an attempt is made to substitute laboratory procedure for clinical experience and intelligence.

This is not an indictment of the postulates of Koch but an appeal for the medical profession to apply them in conformity with the intent of their creator.

INFLUENZA AT THE UNIVERSITY OF KANSAS

The first epidemic at the University of Kansas, with which I am familiar, occurred during the mobilization of the S. A. T. C. in the fall of 1918. We were able to hospitalize all patients. The morbidity was approximately 30 per cent of the student body. There was an incidence of pneumonia among those afflicted of 2.2 per cent. There were .3 per cent of these afflicted with influenza, who died of either pneumonia or meningitis. Pfeiffer's bacillus was conspicuous by the infrequency of its occurrence. Four of the meningitis cases were due to type II pneumococci and four to type III. Two of the type II infections recovered, the other two type II and all of the type III cases died. A number of blood cultures were done on uncomplicated influenza

patients with negative results. The blood counts in uncomplicated and early cases showed, as a rule, a leukopenia with a relative lymphocytosis and diminution of eosinophiles. While the blood picture was not established during the 1889 epidemic, yet it is of interest to note that in 1901 Gaylord and Ashoff[8] considered the typical influenza blood picture as one in which there is no elevation of the white count and it was quite generally taught prior to the 1918 epidemic that influenza was one of a group of diseases characterized by a leukopenia, as Dr. Jordan[9] said at the recent conference called by the surgeon general, this was thoroughly established as one of the positive findings of the 1918 epidemic and is of considerable value in diagnosis.

During the next wave of the epidemic, we carried out rather careful studies[10] on the bacterial flora of the stools of influenza patients and isolated from half of the cases in each of five different communities organisms which showed decided antigenic relationships to *B enteritidis "Gartner"* and which were identical culturally with it and *Para "B"*. One strain satisfied completely the mirror reaction for *enteritidis "Gartner"* while the others were related to it according to absorption tests. Their presence bore no relationship to diarrheas. This work is of interest for several reasons.

1. It is evident that there occurs in a large per cent of influenza patients an apparent abnormal bacterial intestinal flora. Somewhat similar phenomena have been described as occurring in other clinical conditions. It seems to me that such striking phenomena as a marked alteration of the normal bacterial flora should receive much more consideration than it has in the past. While the organisms present may have no etiological relationship to the disease, yet the underlying factors responsible for such abnormalities and a careful study of the abnormal flora in different clinical conditions manifesting such might be of more than academic interest.

Obviously the first question to be raised is whether the flora under consideration is abnormal. My opinion is that in influenza the flora is truly abnormal in a large percentage of cases and, so far as I can judge from the literature, differs in many respects from what would appear on first inspection to characterize abnormal stools in some other clinical conditions. In the first place, I know of no typical influenza stools as judged by gross appearance, consistency, etc. There is apparently no disturbance in the normal occurrence of *B. pyocyaneous*. When plated on E.M.B. media there frequently occurs an unusual number of colonies resembling those of *B. aerogenes*. In from fifty to seventy per cent of the stools we have studied, any where from one or two to many small clear colonies were found which yielded Gram negative rods that gave acid and gas in dextrose, mannite, xylose and rhamnose, and failed to ferment lactose and saccharose. They did not liquefy gelatin. Those isolated in 1919 all blackened lead acetate agar and were typical in old Russell's for *B. enteritidis* or *Para "B"* and gave the typical alkaline reversion in litmus milk. Preliminary inoculations in brilliant green broth gave better results than direct plating. The cultures were all studied for three weeks which ruled out all slow lactose fermenters. Most strains did not produce indol but some strains did. These are obviously not Morgan's bacillus or *B. suipestifer*. They showed some antigenic relationship to *B. enteritidis*, one strain agglutinating in one to ten thousand with enteritidis serum. It also met the requirements of the mirror reaction. These organisms certainly have no name under our present standards of classification. We carried out feeding experiments on monkeys and obtained infection in two instances. At autopsy one of the monkeys showed extensive typhoid like ulcers of Peyers patches, acute hepatitis, acute splenic tumor and marked hyperemia and edema of the lungs. The organisms were obtained from the heart's blood and lungs. The other animal gave a positive febrile reaction and a positive blood culture.

In the epidemic of 1928 at the University of Kansas, ten stools were cultured and seven yielded Gram negative rods giving acid and gas in dextrose, mannite and xylose and rhamnose nega-

tive in lactose and saccharose and non-indol producers, when first isolated. Five months later five of the seven produced a slight amount of indol and two remained negative as judged by the Ehrlich and Vanalin tests. Antigenically, Downs has found that they show no relationship to *B. enteritidis* by absorption tests and differ in some other respects. Four of the strains fall into one antigenic group. The stools likewise showed frequently an increase in aerogenes like colonies over *B. coli* colonies on E.M.B. plates. These were definitely not Morgan's bacillus or *B. suipestifer* and so far as I know are unnamed members of this group. It is interesting to note that the stools of each epidemic were fairly consistent in the type of variants they yielded.

These organisms appear to me to be quite similar to ones studied by Atkinson[12] in Jordan's laboratory in 1912 and 1913. He obtained them I believe from the stools of a series of institutional epidemics characterized as I remember by diarrheas.

Klein and Torry[13] published a survey of the literature including four cases of their own on the pulmonary complications of paratyphoid fever. A careful perusal of their report strongly suggests that most of the epidemics, if not all, might have been true influenza in which this altered bacterial flora pnenomena was manifest. If their interpretation of the etiological factors of the epidemics that they report upon is correct then it would be incontrovertable evidence that members of this group can and do produce epidemics clinically indistinguishable from influenza for they say—"Wiltshire was of the opinion that many of these cases could easily be mistaken for influenza or gastro-enteritis, as the attacks may be of short duration, in this way giving many opportunities for the carriers, as well as those actually sick with the disease, to spread infection. Stolkind describes a distinct respiratory form of paratyphoid fever in which the symptoms resemble those of influenza" "A most important contribution to this phase of the disease has been made by Minet. While working back of the French lines he was able to isolate and cultivate the *Bacillus paratyphosus* from the sputum of seven cases, of these four were *Bacillus paratyphosus A,* two were *Bacillus typhosus B* and one was due to Gartner's bacillus.". . . . "In conclusion, there seems to be a definite pulmonary form of paratyphoid fever which may be easily mistaken for any of the acute respiratory infections." Frey[14] of the British army wrote me that he had obtained similar organisms from the blood stream in one epidemic of influenza among German prisoners of war and it is not inconceivable that these organisms acting as opportunists might be found occasionally in the blood stream. McAdams[15] isolated similar organisms at autopsy in an influenza epidemic in Mesopotamia. We have isolated them in almost pure cultures repeatedly from the urine as well as the feces of one patient. I am certain that some of them have been described as Pfeiffer's bacillus because they were gram negative rods. Wherry and Butterfield's[16] work in Ohio in which they thought that they had isolated similar organisms from influenza patients by the "mouse spray" method has been apparently disregarded because critical observers felt that spontaneous epidemic of *B. enteritidis* among the mice might account for the results. Abram and Glynn[17] report one case of post influenzal pleuritis due to an organism of this type and other cases of pleuritis due to *paratyphosus "B"* or irregular agglutinating enteritidis like organisms. Kuskow described gastro intestinal lesions, such as members of this group might produce, in cases diagnosed as influenza that came to autopsy in Russia. In view of our findings I think their work would merit more serious consideration.

This phenomenon is of interest because of the possible pathogenicity of some of these organisms that might produce a clinical picture not unlike influenza. This will probably be dismissed by many by the mere thought or statement that members of this group could not produce a clinical picture to be confused with influenza. It should be remembered that typical *Para B* and *B enteritidis* are organisms culturally and morphologically

identical and yet are supposed to produce sharply contrasted clinical pictures. So far as we can measure them otherwise they differ only antigenically. The blood picture of this group is certainly a typical influenza blood picture and a mild Para B infection would certainly be hard to differentiate from influenza unless an agglutination test or blood culture should be positive and apparently this may not be infallible. Blood cultures are frequently negative. It might be of interest at this point to quote Leichtenstern's remarks on the differential diagnosis between influenza and enteric fever:

"From Enteric Fever—For the first few days a definite diagnosis may be impossible. If the attack of influenza commences with gradual pyrexia, with diarrhea, rose-spots, and enlargement of the spleen, as happens occasionally, we may have to wait until the temperature begins to fall before the diagnosis becomes certain. Additional doubt will arise if epistaxis and nervous symptoms, signs common to both diseases, are also present. The most useful guides are then the coryza and conjunctivitis, more characteristic of influenza, while a relatively slow pulse and a positive serum-reaction would be in favor of enteric fever. Leukocytosis is absent in both diseases when uncomplicated."

In an Iowa epidemic of "food poisoning" the first case was that of a bronchopneumonia. Judging by the experience with trench fever, in every influenza epidemic there are probably clinically similar and etiologically different conditions that must sooner or later be differentiated but this will have to await the discovery of the cause of influenza. Thinking it might be worth while to attempt a study of the possible mechanisms underlying this phenomenon of an abnormal bacterial flora we carried out some investigations which yielded the following results:

1. From plates or filtrates a bacteriophage for *B. coli* or *aerogenes* could not be demonstrated.

2. Studies using pyocyanase also yielded negative results. We think that a possible explanation is that some unknown factor causes a mutation to occur among some members of the colon-aerogenes group that yields mutants that culturally and morphologically and perhaps also antigenically place them in the paratyphoid enteritis group. Another explanation which may be more logical is that these organisms are frequently present in the normal intestine in numbers too small to be detected by our methods but in certain clinical conditions environmental factors favor their growth and development.

In regard to further information relative to the 1928 epidemic at the University of Kansas, we estimate a morbidity of practically 25 per cent of the student body of 4,000 students with only one case of influenza pneumonia that we have record of and no deaths. The blood picture was typical. An interesting public health problem presented itself. When the epidemic reached such proportions that the student health service could not hospitalize or call on a large number of cases, it was faced with the question of whether to keep the university open and permit several hundred cases to be unattended in the various fraternity, sorority and rooming houses, or to close the university. This is entirely a different problem than that of the average public school where children are living at home and under the care of their respective physicians, or even that of institutions supplied with adequate hospital facilities and a fairly extensive personnel. We made determined efforts to enlarge our personnel of doctors and nurses but failed owing to influenza being epidemic elsewhere. After consultation with the state board of health and a brief survey which, in view of the knowledge that we had several hundred cases on our records that we could not give adequate medical attention, was perhaps unnecessary, we decided to close the university and open a large dormitory as a hospital. This would make possible the hospitalization of all of our cases if they would elect to enter. The criticism that the students who were sick went home and thus spread influenza all over the state is hardly fair since influenza was epidemic all over the state. Furthermore with our

limited facilities for handling an epidemic we would have been placed in an impossible position should the university have been kept open and the epidemic have turned into a virulent pneumonia type.

In regard to the present state of our knowledge of influenza it can best be stated in terms of the report of the conference called by the surgeon general, January 10 and 11, of this year, which was summarized recently by Assistant Surgeon General Draper[18] before the School of County Health Officers at Topeka in the following words:

"In referring to our present knowledge of influenza, Professor Edwin O. Jordan of Chicago said that our conception of the disease was an epidemiological one rather than a bacteriological one. The epidemiological picture marks off influenza from any other infectious disease by the rapidity of its spread, by the higher morbidity affecting in some of the great pandemics from 25 to 50 per cent of the whole population, combined with a low mortality ranging from 1 per cent up to 2 per cent or higher of the cases.

"Another feature is the remarkable independence that influenza shows of any environmental conditions. No age is exempt. Both sexes are affected in very nearly the same degree. All races of mankind are susceptible. Social or economic position offers no barrier to the spread of the infection. The state of nutrition and general physical well being appear to have but little influence.

"Clinically no one can be certain in a given case that he is dealing with an infection caused by the same micro-organism as in other apparently similar cases. Sometimes there is universal agreement as to an infection being a specific case of influenza. There are others in which the agreement is not so general, and there are certain other instances where every competent observer will differ one from the other.

"Professor Jordan stated that there were only two points of first rate importance established during the 1918 pandemic. The first was the observation of leukopenia in a large proportion of the cases and this considerable diminution of the white blood cells in the early stages of the disease is a pretty good objective criterion of influenza.

"The second and by far more important point was that established by Dr. Frost and his associates on the matter of immunity. By his observations in Baltimore and other places, Dr. Frost showed very plainly and conclusively that the number of persons who had influenza in 1920 in one of the secondary waves was just as numerous among those who had the disease in 1918 as among those who had escaped in 1918.

"Through the studies of Dr. Frost we also know that in the 1918 epidemic, at least, the highest attack rate was in the ages from 9 to 14, then a decline from 15 to 19,, and so on to the twenty-five to twenty-nine age group when there is a considerable increase. This is followed by another increase in the age group 30 to 34. These figures give us a basis for further study, and it will be a matter of great interest to compare them with those which are now being tabulated from the studies made by the Public Health Service on the 1928-29 epidemic.

"As regards the bacteriology of influenza, we are still in considerable uncertainty. The most notable bacteriological work that was done in 1918 was that carried out under the direction of Dr. Simon Flexner in the course of which the *Bacterium pneumocentes* was named as possibly having some connection with influenza.

"There is still interest in the Pfeiffer bacillus which up to 1918 was considered almost universally as the causal organism of influenza. There are, however, a number of reasons why the Pfeiffer bacillus fell from its high estate in 1918. It was found in normal persons in considerable numbers. It was found after recovery from influenza, and we have little ground for believing that the convalescent from influenza is infective very far into convalescence, the infective period being in all probability very early as it is in measles.

"The Pfeiffer bacillus was found not only in persons suffering from influenza, but in persons who had never had influenza and in persons not known to have

been in contact with influenza. In experiments conducted by Professor Jordan in Chicago the organisms were found in the throats of healthy persons in considerable numbers in communities where there had been no influenza. Furthermore, experiments with monkeys and other animals and with human volunteers have failed to give undisputable evidence of the causation of this disease by this particular organism. However, the question of the relation of the Pfeiffer bacillus to influenza is one which should be investigated further and carried to a conclusion.

"With respect to the mode of transmission we have some very definite knowledge. There is no reason whatever for believing that the disease is caused by drinking water or milk, or by the bite of insects, or that it is conveyed from the lower animals. All the evidence indicates the enormous importance of the human agent in spreading this disease.

"It has been thought by some that indirect contact, through eating utensils for example, might be a mode of spreading the infection, but no conclusive evidence for that has been brought forward. It is not clear, therefore, how far indirect contact has anything to do with the spread of the disease. There are evidently a number of factors at work that account for differences in the attack rate in large groups of persons.

"Regarding prevention, Professor Jordan said that our knowledge of the modes of prevention is almost as limited as the famed chapter on snakes in Ireland—there are no snakes in Ireland."

SUMMARY AND CONCLUSION

I have quoted sufficiently from the remarkable monograph on influenza by Leichtenstern written shortly after the 1889-92 epidemic and from the report of the recent conference called by the surgeon general to show that with a very few exceptions nothing new has been added to nor subtracted from facts known about influenza as the result of the experience of two large subsequent pandemics.

Pfeiffer's bacillus was tentatively accepted by Leichtenstern as the cause of influenza. At the present time it can be said that considerable doubt prevails concerning either Pfeiffer's bacillus or *Bacterium pneumocenties* being the cause of influenza. The general opinion seems to be that the cause of influenza is unknown.

The blood picture in influenza is well established as a leucopenia. It is a valuable aid in differential diagnosis.

The immunity developing as a result of an attack of influenza was considered of short duration following the 1889 epidemic. Dr. Frost and his associates have abundantly confirmed this.

Jordan and others worked out definite criteria for Pfeiffer's bacillus. Dr. Jordan's comprehensive survey of the whole question of influenza is a valuable contribution in itself.

It seems likely that the infectious period of influenza does not persist beyond the early stage of the disease. This needs further study.

I have called attention to the frequent occurrence in influenza of an abnormal but fairly characteristic bacterial intestinal flora. I have adequately described the phenomenon for influenza and suggest that wherever abnormal flora are observed in other clinical conditions their study and description might lead to information of more than academic interest. I refer especially to a study of the underlying factors responsible for such change, are what appears to be abnormal organisms normally present but in such small numbers that they are not detected until an attack of influenza produces favorable conditions for their growth and development? Does mutation occur in the normal flora due to environmental factors, bacteriophage or some other mechanism and why? Has this phenomenon caused mistaken diagnosis in certain epidemics clinically influenza but reported as due to organisms similar to the ones that I have described? Are those organisms opportunists and capable of producing secondary infection? Are they of importance to the public health worker? Our work and that of others further suggest that in spite of the voluminous literature that has accumulated relative to food poisoning due to members of this group it needs further study.

I have called attention to the recent epidemic of influenza at the University of Kansas, and the perplexing public health problems it raised and have showed how the determining factors are different from those in the secondary school and many other institutions.

There is no satisfactory evidence to date that would warrant the use of any vaccine either prophylactically or therapeutically in influenza.

REFERENCES

1. Leichtenstern, O., Nothnagels Encyclopedia of Practical Medicine, May 1905, 523.
2. Editorial, J.A.M.A. Vol. 92, No. 3, Jan. 19, 1929.
3. Editorial J.A.M.A. Vol. 92, No. 4, Jan. 26, 1929.
4. Rivers, T.M., J.A.M.A. Vol. 92, No. 14, April 6, 1929, p. 1147.
5. Jordan, E. O., Am. Journ. Pub. Health 1920, 10, p. 648.
6. Rivers, T. M., Bull. Johns Hopkins Hosp. 1920. 31 p. 50.
7. Hooker, S. B., Jour. Imm. Vol. 16, No. 5, May 1929.
8. Gaylord, H. R. and Aschoff, L., The Principles of Pathological Histology, Lea Bros. & Co., 1901.
9. Jordan, E. O., cited by Asst. Surg. Gen. Draper in a paper read before the School for Health Officers and Public Health Nurses at Topeka, Kansas, April 15, 16 and 17, 1929.
10. Sherwood, Downs, and McNaught, Jour. of Infect. Dis. Vol. 26, No. 1, Jan. 1920, pp. 16-22.
11. Downs, personal notation.
12. Atkinson, personal notation.
13. Klein and Torrey, Am. Journ. of the Med. Sciences. April 1920, No. 4, Vol. clix, p. 548.
14. Frey, C., personal notation.
15. McAdams, The Lancet No. 5, Vol. 2, Aug. 2, 1919, pp. 189-193.
16. Wherry and Butterfield, Jour. Infec. Dis. Vol. 27, No. 4, Oct. 1920, pp. 315-327.
17. Abram and Glynn, Lancet, Vol. 2, No. 7, Aug. 16, 1919, pp. 283-284.
18. Draper, W. F., Asst. Surg. Gen. U. S. P.H.S., see reference 9.

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Anterior Pituitary Hormone in Blood of Women With Ovarian Efficiency

C. F. Fluhmann, San Francisco (J.A.M.A., Aug. 31, 1929), asserts that the process of ovulation which is set up in the ovaries of an immature white mouse by the implantation of anterior pituitary gland tissue has also been elicited by the injection of blood serum from a number of patients with an operative or radiation castration. This occurred as early as eight days and as late as thirteen years following total extirpation of the ovaries. It was also found in three patients complaining of irregular menstruation. Of seventeen patients with a functional amenorrhea, six showed anterior pituitary hormone in the blood, but in four cases the ovaries of the test animal gave the 'luteinization'' reaction. It is hoped that the use of tests for the presence of anterior pituitary hormone in the blood of patients may prove of clinical assistance in the diagnosis and treatment of certain conditions which manifest themselves by periods of amenorrhea and other menstrual disturbances.

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Hospitalization of Narcotic Addicts U. S. Penitentiary, Leavenworth, Kansas

C. S. Bennett, M.D., Physician

As physician of the United States Penitentiary, Leavenworth, Kansas, for the past three years, and coming in daily contact with the narcotic addicts, during which time it has been the writer's pleasure to make a close study of these inmates, acquainting himself with their peculiarities, whims and trickeries, as well as to prescribe a treatment which has brought most satisfactory results.

The narcotic addict is one of the most puzzling problems of the hospital department of the Federal Penitentiary. Primarily he is ill and suffering with a chronic illness which has gripped his very soul, diseased his mind and body; he violates the law, but in a deeper sense suffers from a disease and must be treated as a patient. He requires almost daily attention for the full time of his incarceration. He is quite troublesome to handle because of the depressive action of opium and its derivatives upon the higher brain centers. Those who have used drugs over a period of years have lost their finer sensibilities and have been converted into untruthful wretches; they cannot be depended upon. They are quite apt to malinger, therefore, it is difficult because of their untruthfulness to give them proper treatment.

In the accompanying figures will be noted that during the fiscal year ending June 30, 1928, the institution admitted a total of 690 addicts, out of this number 329 addicts were hospitalized; 361 were not hospitalized because of the fact that they broke their habit ''cold turkey'' or off the drug for a period of some time in jail.

It is necessary to give the patients a course of treatment which averages from three to seven days, which treatment consists principally of elimination and reconstruction. The latter treatment consists of recuperation and the treatment of their chronic ills.

Many systems of treatment for addicts have been tried and found unsatisfactory for institutions of this type, for example:

The hyoscine treatment which consisted of injections of hyoscine and pilocarpine, but the great fault with this treatment was that the patients were hard to handle because of the peculiar accumulative action of hyoscine, often making them wild and unmanageable. This treatment was a failure.

About this time a great deal of news was being published throughout the country in regard to the Narcosan treatment, and 1000 ampules were received for experimental purposes by the institution. It was noted that the patients were more easily handled than under hyoscine but could detect no specific action in this drug. Because of the fact that the patients were quieter and more easily controlled, an experiment was attempted to discover why this should be true. Narcotic addicts were treated in two groups; one group was given the Narcosan treatment, and the second group, sterilized water hypodermically administered similar to that of Narcosan with the same results. The data gathered in these experiments point to one conclusion, that there was a peculiar psychological influence cast upon the addicts when admitted to the institution, created no doubt, by the clanging of the iron doors behind them. These men in a majority of the cases evidently came to the conclusion that they were locked up and must make the best of their affliction.

Working from this angle, it was then attempted to establish a treatment that would cause elimination, and also counteract the actions of opium and its derivatives. The following is the method used in this institution at the present time.

Any narcotic addict coming into the institution is examined by the writer. If any recent needle marks indicate he had been a recent user, or if he is under the influence of drugs, he is admitted into the hospital, put to bed, and taken off his narcotic immediately. (Two or three inmates gave a history of using as high as 60 grains of morphine a day and the narcotic was withdrawn with no apparent ill effect). He is given a course of calomel and magnesium sulphate as a purgation. The following morning he is given another purge of magnesium sulphate and immediately after the second dose, he is placed on hypodermics containing strychnin sulphate, 1/60 grain, and adrenalin sol. (1-1000) 5m, made up to 1 c.c. with distilled water. These injections are administered every three hours during the length of time he is a patient in the hospital. Following each hypodermic, he is given sodium bicarbonate to alleviate any accompanying gastric disturbances. During his stay in the hospital, he is given a course of electric sweat baths for a period of seven or more days, according to the individual's condition, followed each time by a needle spray in order to stimulate peripheral circulation. These sweat baths not only increase elimination but aid greatly in controlling other withdrawal symptoms. While in the hospital, for the first three or four days, he is kept on a liquid diet followed by a special diet and tonic. The period of their hospitalization depends entirely upon the patient's physical condition and the reaction to the withdrawal of their narcotics. Following the patient's discharge from the hospital they are retained upon a special hospital diet in correlation with a tonic. Those who are in a poor physical condition are given light work for a period of time in open air and sunshine, in order to give them a chance to gain weight and readjust themselves. The remainder who are in fairly good condition are put to hard labor. This treatment has been quite satisfactory. In this institution it has been found that they are easily handled during their hospitalization and they seem to adjust themselves more quickly, their appetites become quite ravenous, with a rapid gain in weight in a majority of the cases of treated addicts. It must be understood that no claim is made for a permanent cure in this treatment.

It is known that primarily opium and its derivatives depress the higher centers of the brain. They have diminished the finer sensibilities, such as pain,

cough, fatigue, hunger, discomfort, concentration and judgment. They also have a central vasomotor depressibility, thus causing the lowering of blood pressure and often a weak, irregular and rapid pulse results from long continued use of opiates. There is a peculiar complex peripheral action of these drugs. The peristalsis of the intestinal tract is slowed. There is a decrease in the defecation reflex; the skin, hair, and nails are dry and show undernourishment. The skin loses its usual healthy appearance, becomes dry, sallow and has little or no elasticity. Because of the peripheral action of these drugs upon the digestive tract and other viscera, the patient loses weight, becoming a physical wreck if he has been addicted any great length of time.

By observing the action of the strychnin sulphate upon these subjects, it will be noted that it reverses the action of opium and derivatives to a certain extent. It is a well known fact that strychnin increases the nervous reflexes or the reflex excitability of the spinal cord and medullary centers, and thus has a tonic effect upon the individual, not only is the tone of the general musculature improved but the respiratory and vasomotor centers are stimulated. The increased blood pressure following the administration is partly due to the action of strychnin on the vasomotor center, also improving the pulse. Peristalsis of the intestines is increased probably through the action of strychnin upon Auerbach's ganglia. Adrenalin, as we all know, is a stimulator of the sympathetic nervous system and raises the blood pressure through its peripheral action. It might have some little effect upon the endocrine system in a diluted dosage because of being an endocrine product itself. Whether this is true or not, the addict so treated gained weight rapidly in most cases. The writer has been quite interested in narcotic addicts who are so unfortunate as to be incarcerated in a penal institution of this type.

The following table gives rather a limited insight into the past life of 100 narcotic addicts, chosen at random, who were personally interviewed by the writer. The writer has tried to show the type of drugs used by the narcotic addicts, the amounts, the reason why they began the use of narcotics, type of drug first used and how administered. It might be interesting to know that a large percentage of these addicts state that they first began the use of drugs either through prescriptions by physicians or administered by one for some acute condition. This one item should be taken for what it is worth, for an addict is a veritable prevaricator. It is also interesting to know that a large percentage of narcotic addicts began the use of drugs by first using opium for pleasure smoking. This is especially true among the older narcotic addicts and those who have used dope for a greater number of years. During these interviews it was shown that very few addicts began their addiction with the use of heroin; those who began with the use of heroin, in this institution are principally those of the Mexican race who arrived from the southern border, or what few are received from the larger eastern cities.

RECORD OF DRUG ADDICTS

On hand, year ending June 30, 1928.....		690
No former convictions	315	
One former conviction	216	
Two former convictions	100	
Three former convictions	42	
Four former convictions	9	
Five former convictions	6	
Six former convictions	2	
Total. . .		690
Drugs Used:		
Morphine only	571	
Cocaine only	13	
Heroin only	24	
Opium only	24	
Morphine and Cocaine	40	
Morphine, Cocaine and Heroin	5	
Morphine and Opium	9	
Morphine, Heroin and Opium	2	
Morphine and Heroin	1	
Cocaine and Opium	1	
Total. . .		690
Number under hospitalization	7	
Number of hospital patients released	322	
Number hospitalization unnecessary	361	
Total		690

ANALYSIS ON ONE HUNDRED NARCOTIC ADDICTS CHOSEN AT RANDOM UNITED STATES PENITENTIARY, LEAVENWORTH, KANSAS

No.	Present age.	Years on Habit.	Drugs Used: Morphine Grs. Daily.	Drugs Used: Cocaine Grs. Daily.	Drugs Used: Heroin Grs. Daily.	Drugs Used: Opium Phuns Daily.	Drugs Used at Start of Habit: Opium.	Drugs Used at Start of Habit: Cocaine.	Drugs Used at Start of Habit: Heroin.	Drugs Used at Start of Habit: Morphine.	Cause of Habit: Environment.	Cause of Habit: Thrill and Adventure	Cause of Habit: Liquor.	How Cont'd Given by Drs. During: Illness.	How Cont'd Given by Drs. During: Injury.	How Cont'd Given by Drs. During: Operations.	Narcoticism Cures.	No. of Convictions.	Schooling: Grade	Schooling: High School.	Schooling: College.
1	39	10	15	..	..	..	.....	.....	.....	Mouth	..	1	..	..	..	..	1	1	7	..	..
2	49	25	15	..	..	20	.....	Sniff	.....	.....	..	1	..	..	..	..	1	8	..	2	..
3	49	25	..	..	..	20	Smoke	.....	.....	.....	..	1	..	..	..	..	0	1	4	..	..
4	33	7	2	..	..	..	.....	.....	.....	Mouth	1	..	..	..	..	..	2	1	0	..	..
5	37	10	15	..	..	..	Smoke	.....	.....	.....	..	1	..	..	..	..	1	2	..	..	1
6	32	10	7	..	..	..	.....	.....	.....	Hypo	..	..	..	1	..	..	1	2	..	2	..
7	39	15	15	..	..	..	.....	.....	Sniff	.....	..	..	1	..	..	..	0	1	3	..	..
8	45	18	10	..	..	..	Smoke	.....	.....	.....	..	1	..	..	..	..	0	1	4	..	..
9	29	½	1	..	..	..	.....	.....	.....	Hypo	1	..	..	..	..	..	1	2	3	..	..
10	59	29	15	..	..	15	.....	.....	.....	Hypo	..	..	..	..	1	..	1	4	..	4	..
11	24	10	30	..	..	..	.....	.....	.....	Mouth	..	1	..	..	..	..	1	1	..	4	..
12	25	5	12	..	..	..	.....	.....	.....	Hypo	..	1	..	..	..	..	5	1	8	..	..
13	18	½	12	..	..	..	.....	.....	.....	Hypo	1	..	..	..	..	..	0	1	7	..	..
14	29	10	5	..	5	..	.....	.....	.....	Hypo	1	..	..	..	..	..	2	1	8	..	..
15	28	10	12	..	..	..	.....	.....	.....	Hypo	..	..	1	..	..	..	1	2	0	..	..
16	30	6	..	..	1	..	.....	.....	Sniff	.....	..	..	1	..	..	..	0	2	3	..	..
17	24	2	..	..	3	..	.....	.....	Hypo	.....	..	1	..	..	..	..	0	2	0	..	..
18	33	10	..	..	2	..	.....	.....	.....	Hypo	..	..	..	..	..	1	2	2	7	..	..
19	32	½	1	..	..	..	.....	.....	.....	Hypo	1	..	..	..	..	..	0	1	0	..	..
20	27	½	..	..	1	..	.....	.....	.....	Hypo	..	..	..	..	1	..	0	0	2	..	..
21	37	10	8	..	..	..	.....	.....	.....	Hypo	..	..	..	1	..	..	2	1	7	..	..
22	38	8	8	..	..	..	.....	.....	Sniff	.....	1	..	..	..	..	..	0	2	7	..	..
23	39	18	8	..	..	..	Smoke	.....	.....	.....	1	..	..	..	..	..	2	2	..	2	..
24	38	15	60	..	..	..	Smoke	.....	.....	.....	1	..	..	..	..	..	0	3	4	..	..
25	31	8	8	..	..	..	.....	.....	.....	Hypo	1	..	..	..	..	..	1	1	2	..	..
26	30	3	1	..	..	..	.....	.....	.....	Mouth	..	..	1	..	..	..	0	1	0	..	..
27	37	20	40	..	..	..	Smoke	.....	.....	.....	..	1	..	..	..	..	5	2	4	..	..
28	48	8	4	..	..	..	.....	.....	.....	Hypo	..	..	..	..	1	..	1	2	8	..	..
29	57	27	..	..	..	30	Smoke	.....	.....	.....	1	..	..	..	..	..	0	2	0	..	..
30	24	4	6	..	..	..	.....	.....	.....	Hypo	..	..	..	1	..	..	2	2	8	..	..
31	43	27	15	..	..	..	.....	.....	.....	Mouth	..	..	..	..	1	..	2	2	8	..	..
32	24	½	2	..	..	..	.....	.....	.....	Hypo	..	..	..	1	..	..	1	1	6	..	..
33	60	31	21	..	..	..	.....	.....	.....	Hypo	..	..	..	..	1	..	0	1	8	..	..
34	33	19	15	..	..	..	.....	.....	Sniff	.....	1	..	..	..	..	..	3	3	4	..	..
35	44	5	10	..	..	..	.....	.....	.....	Hypo	..	..	..	1	..	..	4	2	8	..	..
36	47	20	8	..	8	..	.....	.....	.....	Hypo	..	..	..	1	..	..	12	2	8	..	..
37	34	20	60	..	..	..	.....	.....	Sniff	.....	..	1	..	..	..	..	1	4	6	..	..
38	58	34	10	10	..	..	Mouth	.....	.....	.....	1	..	..	..	..	..	5	5	8	..	..
39	49	29	8	..	..	10	Smoke	.....	.....	.....	..	..	1	..	..	..	2	3	4	..	..
40	46	10	10	..	..	..	.....	.....	.....	Hypo	1	..	..	..	..	..	3	3	4	..	..
41	42	18	5	..	..	..	.....	.....	.....	Hypo	1	..	..	..	..	..	2	3	3	..	..
42	41	20	8	8	..	..	.....	.....	Sniff	.....	..	..	..	1	..	..	2	3	2	..	..
43	50	26	10	10	..	10	Smoke	.....	.....	.....	..	1	..	..	..	..	5	1	..	2	..
44	32	1	½	..	..	..	.....	.....	.....	Mouth	..	1	..	..	..	..	0	1	8	..	..
45	34	11	8	..	..	..	.....	.....	.....	Hypo	..	..	..	..	1	..	0	3	..	1	..
46	47	6	5	..	..	..	.....	.....	.....	Hypo	..	..	1	..	..	..	0	1	8	..	..
47	35	8	..	..	..	25	Smoke	.....	.....	.....	..	..	..	1	..	..	1	2	..	..	3
48	27	8	10	..	..	10	Smoke	.....	.....	.....	1	..	..	..	..	..	1	2	..	2	..
49	53	36	15	15	..	..	Smoke	.....	.....	.....	1	..	..	..	..	..	2	3	..	2	..
50	37	17	10	10	10	10	.....	.....	.....	Hypo	..	1	..	..	..	..	12	7	8	..	..
51	33	10	8	..	..	..	.....	.....	.....	Hypo	..	..	..	..	1	..	0	2	..	2	..
52	46	7	4	..	..	..	.....	.....	.....	Hypo	..	..	..	1	..	..	0	3	5	..	..
53	30	7	4	..	..	..	.....	.....	.....	Hypo	..	..	..	1	..	..	0	2	8	..	..
54	33	17	10	..	8	..	.....	.....	Sniff	.....	1	..	..	..	..	..	3	1	8	..	..
55	50	11	10	10	..	10	Smoke	.....	.....	.....	..	1	..	..	..	..	0	1	..	1	..
56	33	10	2	..	..	..	.....	.....	.....	Hypo	..	..	..	..	..	1	2	3	8	..	..
57	47	30	8	4	..	4	Smoke	.....	.....	.....	..	1	..	..	..	..	1	1	8	..	..
58	44	27	4	4	..	4	.....	.....	.....	.....	1	..	..	..	..	..	2	1	5	..	..
59	46	10	4	..	..	1	Smoke	.....	.....	.....	..	1	..	..	..	..	1	1	0	..	..
60	40	1	½	..	..	..	.....	.....	.....	Hypo	..	..	..	..	1	..	0	1	8	..	..
61	47	24	5	..	..	..	.....	.....	.....	Hypo	..	..	..	..	..	1	0	1	8	..	..
62	28	1	2	2	..	..	.....	.....	.....	Hypo	1	..	..	..	..	..	1	1	8	..	..
63	29	10	6	..	..	6	Smoke	.....	.....	.....	..	1	..	..	..	..	0	2	8	..	..
64	32	10	10	..	..	5	Smoke	.....	.....	.....	..	1	..	..	..	..	1	1	5	..	..
65	34	7	4	4	..	8	.....	.....	.....	Hypo	1	..	..	..	..	..	0	1	4	..	..
66	43	24	5	5	5	..	Smoke	.....	.....	.....	..	1	..	..	..	..	1	1	8	..	..
67	24	2	2	..	..	..	.....	.....	.....	Hypo	..	..	..	..	1	..	0	1	8	..	..
68	51	8	8	..	..	..	.....	.....	.....	Hypo	1	..	..	..	..	..	1	1	4	..	..
69	35	11	10	10	10	..	.....	Sniff	.....	.....	..	1	..	..	..	..	1	1	8	..	..
70	33	5	4	..	3	..	.....	.....	Hypo	.....	..	..	..	1	..	..	1	2	8	..	..
71	44	16	10	..	10	30	Smoke	.....	.....	.....	1	..	..	..	..	..	2	2	..	2	..
72	39	12	..	5	..	5	.....	.....	.....	Hypo	1	..	..	..	..	..	5	1	5	..	..
73	29	6	8	8	8	..	.....	.....	.....	Hypo	..	..	..	1	..	..	0	1	6	..	..
74	41	15	5	..	..	..	.....	.....	.....	Mouth	..	1	..	..	..	..	30	4	8	..	..
75	36	14	10	10	..	..	.....	Hypo	.....	.....	..	1	..	..	..	..	1	1	0	..	..
76	29	½	5	..	..	..	.....	.....	.....	Hypo	..	1	..	..	..	..	0	1	8	..	..
77	39	10	4	..	4	4	Mouth	.....	.....	.....	..	..	..	1	..	..	2	1	7	..	..
78	40	10	5	5	5	5	Smoke	.....	.....	.....	..	1	..	..	..	..	0	2	0	..	..

No.	Present age	Year on Habit	Drugs Used: Morphine Grs. Daily	Cocaine Grs. Daily	Heroin Grs. Daily	Opium Phuns Daily	Drugs Used at Start of Habit: Opium	Cocaine	Heroin	Morphine	Cause Habit: Environment	Thrill and Adventure	Liquor	How Cont'd Given by Drs. During: Illness	Injury	Operation	Narcoticism	No. of Convictions	Schooling: Grade	High School	College
79	64	1	¼							Hypo				1			0	1			4
80	36	18	10		10	5				Hypo						1	2	3		1	
81	29	9	5	5				Sniff			1						2	2	8		
82	36	19	10	10	10	5	Smoke					1					30	4		4	
83	42	13	5	5		10	Smoke					1					3	3	8		
84	33	14	12							Hypo				1			1	1	8		
85	31	12	5	5	5		Mouth							1			3	2	3		
86	20	3	1							Hypo					1		0	1	0		
87	35	3	5	5				Hypo			1						0	2	8		
88	59	39	5			5	Smoke						1				3	1		4	
89	41	11	8							Hypo	1						1	3	3		
90	35	15	4	4						Mouth				1			2	1	5		
91	37	4	16							Mouth					1		0	2	8		
92	33	4	6			6	Smoke				1						1	1	8		
93	33	5	3	2			Smoke					1					2	2			2
94	28	1	3	3						Hypo		1					2	3	0		
95	34	10	5		5	5	Smoke					1					1	2	8		
96	45	4	4							Hypo			1				2	2		2	
97	41	5	4		4					Hypo				1			2	2	8		
98	24	1			3				Sniff		1						0	1	6		
99	39	15	12							Hypo				1			2	2	8		
100	46	10	6							Hypo					1		0	2	7		
T't'l	3803	1345									28	29	8	19	12	14	205	193	442	165	58

50 % used morphine.
5 % used heroin.
3 % used opium.
10 % used morphine and cocaine.
9 % used morphine and opium.
7 % used morphine, cocaine and opium.
5 % used morphine and heroin.
4 % used morphine, cocaine and heroin.
3 % used morphine, heroin and opium.
3 % used morphine, cocaine, heroin and opium
1 % used cocaine and opium.

46 % began habit using morphine by hypo.
9 % began habit using morphine by mouth.
27 % began habit using opium by smoking.
3 % began habit using opium by mouth.
8 % began habit using heroin by sniffing.
2 % began habit using heroin by hypo.
3 % began habit using cocaine by sniffing.
2 % began habit using cocaine by hypo.

29 % contracted habit thru thrill and adventure.
28 % contracted habit thru environment.
8 % contracted habit thru liquor.
35 % contracted habit thru drugs given by doctors.

Average age of beginning habit 24 years 6 months.
Average years on drugs 13 years 5 months.
Average schooling 6 years 6 months.

KANSAS MEDICAL LABORATORY ASSOCIATION

Certain Public Health Problems of Oregon

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Director State Hygienic Laboratory, Portland, Ore.
(Formerly Director State Laboratory, Kansas)

It has been stated that man is man's most dangerous enemy. The ever-increasing number of diseases traceable to insect and animal hosts and transmissible to man may seriously question the soundness of this statement. Every climate, every country, it may be said, almost every state has its own peculiar disease problems; and among the diseases which are of great interest to the Northwest, and particularly to Oregon, are those which are transmissible by insects and animals.

Oregon has two rather sharply defined sections based on the density of population. One section consists of fourteen counties of the northwestern part of the state, and has an average density of population of 40.1 persons per square mile. The other section is sparsely populated; in fact, parts of it are unpopulated. It includes twenty-two counties, with an average density of population of 3.4 persons per square mile. Based on climatic conditions the state is also sharply divided into two sections—that which lies east of the Cascade Mountains, and that which lies west. The eastern portion of the state is arid, partly desert, and has an average annual rainfall of 15.42 inches. The western section, the coastal section, has a mild, even climate, and has an average annual rainfall of 52.83 inches.

One disease which has thus far been confined to Eastern Oregon is Rocky Mountain spotted fever, sometimes called tick fever. According to Spencer[1], this is "an acute specific, non-contagious, tick-borne disease endemic in the northwestern part of the United States. Clinically, it closely resembles typhus fever and is characterized by an onset with chill, continued fever, severe headache, pains in the bones and muscles, and a macular and sometimes maculo-papular eruption, which appears about the third day of the fever, first on the wrists, ankles and back, and then over the whole surface of the body."

The central part of eastern Oregon is the region in which the infection is mostly found, although cases have been reported in all sections east of the Cascades. The disease is found in the valley and is usually contracted in or near the mountains. The months of June, May and April are given in order of the frequency of the disease, but cases have been reported as early as February, and as late as September.[2]

There is some evidence, according to Spencer, that the disease reaches its greatest prevalence every seventh year, corresponding roughly to a similar increase in the number of rodents—chiefly rabbits. 1929 will undoubtedly mark the highest incidence of spotted fever ever recorded in Oregon. The number of cases and deaths since 1920 is given in Table I.

Table I. Rocky Mountain Spotted Fever in Oregon

Year	*Cases*	*Deaths*
1920	8	5
1921	13	7
1922	17	8
1923	15	4
1924	8	5
1925	18	2
1926	30	8
1927	26	7
1928	26	3
1929	67	10

Dermacentroxenus rickettsi, a gram-negative, pleomorphic intracellular, rickettsia-like organism, is generally considered the causative agent. This virus apparently requires a warm-blooded and a cold-blooded host. One may, therefore, consider either the tick *(Dermacentor Andersoni)* or the susceptible rodent host as its source. The rodent population of eastern Oregon is unusually large, being favored both by climatic and geologic conditions and by the sparsity of human population.

The laboratory diagnosis of Rocky Mountain spotted fever may be made by the injection of the patient's blood into guinea pigs. Typical symptoms of the disease are reproduced. Spencer states that while the virulent form of the disease can usually be reproduced in the guinea pig, the mild type of the infection is more difficult to establish. Spencer and his co-workers have also found the Weil-Felix reaction present in the majority of cases of Rocky Mountain spotted fever tested by them.

A considerable number of persons in eastern Oregon have recently taken the vaccine developed by Spencer and Parker. Because of the very short time that the vaccine has been in use, its efficacy and usefulness are yet to be determined. It gives promise, however, of reducing both the morbidity of and mortality from this disease.

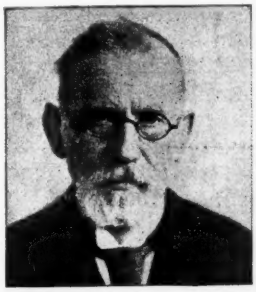
Another disease in which insects and animals play an important part in its dissemination is tularemia. As with Rocky Mountain spotted fever much of what is known of tularemia has been accomplished through the splendid work of the United States Public Health Service, particularly Dr. Edward Francis. The etiologic agent of tularemia is *Bacterium tularense,* a small, gram negative bacillus, first discovered by McCoy and Chapin in 1912, as the cause of a fatal To a very large extent rabies also has been confined to that section. Undulant fever has been found in all sections of the state. The activities of the United States Biological Survey in the extermination of predatory animals have been fruitful not only in the saving of domestic stock, but also in the reduction of animal reservoirs of human-transmissible infections.

1. Spencer, R. R. "Rocky Mountain Spotted Fever." J. Infec. Dis. 44, 4, p. 257.
2. Strickler, F. D. "The Prevalency and Distribution of Rocky Mountain Spotted Fever in Oregon." Bull. Montana

State Board of Health. Spec. Bull. 26, June 1923.
3. Francis, Edward "Symptoms, Diagnosis and Pathology of Tularemia." J.A.M.A. 91, 1155. Oct. 20, 1928.
4. Bulletin Nevada State Board of Health, Nov. 1, 1928.
5. Figures furnished by Mr. S. G. Jewett, Leader Predatory Animal Control, Portland, Oregon.

TUBERCULOSIS ABSTRACTS

For years, search has been made for some blood serum test that might indicate specifically the presence of tuberculous infection and that would vary consistently with different clinical or pathological stages of that infection. No reaction is yet known that satisfies both of these conditions. However, the tuberculo-complement fixation test, after several



Paul Ehrlich (1854-1915)
Pioneer in Serology

years of uncertain status, has at last been so technically perfected and standardized that it has a very distinct value. Dr. James Wynn of the Indiana University Medical School describes this and other serological tests for tuberculosis. While a detailed knowledge of serological technique is not necesary, an understanding of the principles underlying this test is essential for the clinician who would interpret it judiciously.

TUBERCULO-COMPLEMENT FIXATION

In tuberculous infection, the bacillary focus, acting antigenically through blood-stream absorption, tends to stimulate the patient's serum to the production of a thermostabile substance commonly referred to as reagin or amboceptor. This substance is highly specific for the antigen. In the presence of complement (a thermolabile substance present in any fresh blood serum, whether normal or immune), this reagin will combine with both antigen and complement. If a tuberculous suspect's serum is mixed, in the presence of complement, with an antigen specially prepared from boiled tubercle bacilli, the disappearance of complement from the mixture connotes antigen-reagin-complement union—which means that the suspected serum contained the tuberculosis reagin; *i. e.,* was positive. (This disappearance of complement is demonstrated, as in the Wassermann reaction, by mixture with a hemolytic system in which suspended erythrocytes are the antigen and serum hemolysin the reagin; if there is no hemolysis, it is clear that complement has been previously "fixed" by the tuberculosis reagin and the reaction is positive.) A quantitative technique and accurate titration of antigen make it possible to embody the foregoing immunological principles in a diagnostic test. It is necessary to parallel the test with the Wassermann reaction, since a positive tuberculo-complement fixation is of little significance in the presence of a positive Wassermann reaction.

Though in its earlier years tuberculo-complement fixation appeared to be of doubtful value, when skilfully performed the test now gives, within reasonable limits, distinctly reliable information. This demonstration of the test's true worth is due almost entirely to the work of such men as Petroff and Woolley in standardizing technique, antigen, etc.

According to Woolley, "With accurate technique, the reaction is positive in 60 to 80 per cent of cases, depending on the stage of the disease." Blood-stream absorption from the tuberculous focus is necessary to produce reagin production. And there must be sufficient absorption to stimulate an excess of reagin over the amount necessary to fix the lesion-produced antigen. (It is the failure of this excess which accounts for the low reagin curve in terminal stages of the disease.) It is apparent, therefore, that a positive reaction is of far from trivial significance and may be taken to mean activity in the sense that the focus is producing very definite systemic absorption. The fact that this absorption may be quantitatively insufficient to occasion symptoms or physical signs in a measure invalidates the test as an index to the extent of clinical activity. Nevertheless, a

strongly positive and persistent reaction is very suggestive evidence of impending if not actually existent clinical activity.

On the other hand, in a patient with definite symptoms and physical signs pointing to active tuberculous disease, a negative reaction by no means excludes tuberculosis; for, as previously stated, the reaction measures merely the *excess* of blood reagin (which is occasionally nil, *e. g.*, in overwhelming or terminal infections). The real usefulness of the negative reaction is in differentiating tuberculosis from such conditions as bronchiectasis, certain forms of chronic bronchitis, and interstitial pneumonia.

CELL SEDIMENTATION TEST

Several other recently proposed serological tests for tuberculosis may be briefly mentioned. A definite relationship has long been recognized between certain physiological and pathological states and the rate at which the cells in citrated blood settle on standing. Westergren (1921) observed what he believed to be a diagnostic type of sedimentation in pulmonary tuberculosis. The test requires so little apparatus and technical skill that it can be performed by any careful physician. Of the various techniques in general use, many of the best features are incorporated in the method of Cutler (1929) which is as follows:

After drawing 0.1 c.c. of freshly prepared sterile 3 per cent sodium-citrate solution through a 20-gauge needle into a dry, sterile 2 c.c. syringe, a vein is entered and blood drawn to the 1 c.c. mark. The syringe is then tilted gently back and forth to avoid clotting, and the mixture promptly injected into a Cutler tube. (These tubes have an internal diameter of 5 mm. and are marked in millimeters, beginning with zero at the 1 c.c. level, increasing downward to 50.) The tube is tightly stoppered until ready for reading. Its contents are then thoroughly mixed and the level of the settling cells noted every five minutes for one hour. These data are graphed (with the time in minutes and the level in millimeters). Cutler has described fairly characteristic curves for normality, pulmonary quiescence, slight to moderate activity, and moderate to marked activity—the cell levels at 60 minutes for these groups being respectively 3, 15, 20, and 30 mm. Comparison of a patient's graphs from week to week is of distinct value in clinical management and prognosis. But the test is of little or no differential diagnostic value.

TEST FOR ANTIBODIES IN URINE

Assuming that in active tuberculosis antibodies would be eliminated in the urine, Wildbolz (1919) suggested that the urine of tuberculosis suspects might be tested for these by injecting concentrates of it into a known tuberculin-hypersensitive skin and comparing the cutaneous response with that occasioned by tuberculin controls. Lanz (1920) and Imhof (1920) applied fundamentally the same hypothesis to the development of a serum test. Numerous efforts to confirm these observations have led to an accumulation of statistical data that have thus far proved inconclusive.

FLOCCULATION TEST

The flocculation test of Daranyi (1922) is dependent on the fact that a substance (probably globulin) may be precipitated from a high percentage of tuberculous sera by an alcohol-salt solution mixture. Convincing evidence of its real diagnostic usefulness is lacking. Though positive in a very large number of advanced active cases, its value in picking up the early case of tuberculosis is practically nil.

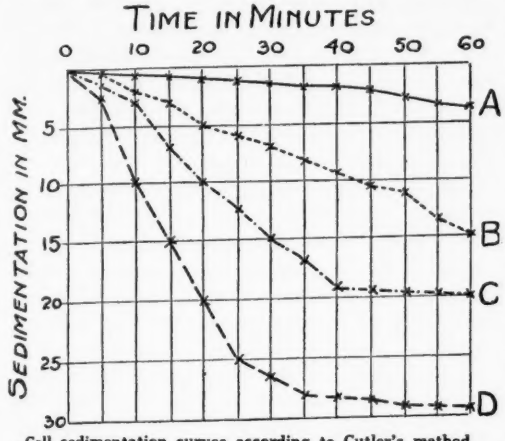
PRECIPITIN TEST

Agglutinin and precipitin reactions in tuberculosis have been very largely abandoned, since a general lack of specificity has militated against any possible clinical application. However, Doan, working with a tubercle-bacillus fraction furnished him by Anderson, has described very recently (May, 1929) a precipitin test which is promising. Though still entirely in the experimental stage, the test is of more than ordinary interest; for, if critical study eventually proves its value, its simplicity of technique might conceivably bring it into very general clinical use.

COMMENT

From the foregoing, it is obvious that today, at least, serological methods are of comparatively minor importance in

the diagnosis of tuberculosis. Even tuberculo-complement fixation merely furnishes confirmatory evidence for a diagnosis already made by the less technical but more fundamentally important means, such as the study of clinical history, physical signs, and sputum. In the words of Dr. Krause, "The laboratory diagnosis of the ordinary case of tuberculosis can be accomplished by simple methods in an ordinary physician's hands in an ordinary physician's office."



Cell sedimentation curves according to Cutler's method
A. Normal. C. Slight to moderate activity.
B. Pulmonary quiescence. D. Moderate to marked activity.

Intramuscular Injection of Adult Whole Blood as Prophylactic Against Measles

In a series of thirty patients from 6 to 42 months of age reported on by George B. Bader, New York (J.A.M.A., Aug. 31, 1929), from 20 to 30 c.c. of whole blood of persons recovered from measles from two to twenty-five years previously (except in one case in which 10 c.c. was used from a cousin three months' convalescent) was given intramuscularly. This blood, which was given within the first seven days following exposure, completely protected twelve patients, so far as escape of measles is proof of protection, and was followed in nine by a modified and attentuated measles without catarrhal systoms. In eight patients, mild catarrhal symptoms were present. One child had measles of moderate severity and she was the only one of the thirty known to have had Koplik's spots and a typical eruption. In the others in whom eruptions were present they were not characteristic. There was a distinct modification of the temperature except in two instances. There seems to have been a prolongation of the incubation in all except possibly four. There were no complications. He concludes that whole blood from adults long recovered from measles is an effective measure against measles. This report is suggestive and other similar reports in the literature lend corroborative evidence of the validity of the measure as a weapon to use to minimize the dangers from measles. It might be particularly efficacious for institutions where many cross-infections are often to be found when the serum from recently convalescent patients is not readily available, or in the age group under 5 years, in which 90 per cent of the deaths from measles occur, or in the weak and debilitated in whom the presence of measles might determine a fatal issue. If the disease could be prevented or modified in these instances, many lives might be saved and the mortality from measles appreciably reduced.

The Pediatrician's Formula

The first suggestion for the preparation of Mead's Dextri-Maltose came from pediatricians. Naturally their preference for this particular form of carbohydrate is back of its very conception. Dextri-Maltose brings mothers with their babies back to your office, not only because of its clinical results but because it satisfies the mother that her baby is receiving individual attention—that it is getting "a formula."

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FACTS, FIGURES AND FANCIES

Occasion has been found at various time to mention in this column the increasing tendency of so-called leaders of thought, especially those in the medical profession, to speak in positive terms concerning matters much in question, subjects about which too little is really known to permit intelligent conclusions to be drawn. On the other hand there seems to be a growing tendency on the part of the scientific investigators in medicine to avoid definite conclusions and positive statements. This policy seems to be a safer one and is less likely to lead to embarrassment.

The rest of us are perhaps too ready to accept statements of facts as facts and to adopt ready-made conclusions that are sold or given to us. And we too frequently find that the statements of facts are misstatements and the ready-made conclusions are misfits.

When there are conflicting opinions on any subject it is safe to say that the facts known do not justify a definite conclusion, and that the greater the number of conflicting opinions the less actual knowledge of the subject is to be had. Controversies, however, are sometimes maintained for purposes other than information, and concerning subjects about epidemic among ground squirrels in Tulare County, California.

Ticks, flies and rabbits are the great natural reservoirs of the disease. Francis[3] also mentions the woodchuck, coyote, ground squirrel, hog, and cat as sources of infection. The gopher and dog are also reported to have been responsible for the disease in man.[4]

Thus far there have been reported in Oregon six cases of tularemia, of which five were corroborated by serological tests. The sixth, from whom a blood specimen was not obtained, was a typical clinical case. Five of the six cases came from one county, Klamath, in the south central part of the state, and one from Baker county—both counties being east of the Cascade range. Four cases were bitten by "deer-flies," one by a tick, and one—a seven-year old boy—obtained his infection when dressing a jack-rabbit. Five of the cases were of the ulceroglandular type; the sixth, while giving a history of a primary lesion, resembled more the typhoid type of infection as classified by Francis[3]. The serum of two of the cases agglutinated *B. tularense* in a dilution of 1-160; two, in a dilution of 1-320; and one in 1-640. All of the cases recovered.

The extent to which predatory animals may be responsible for the spread of insect-borne infections is not definitely known. Certainly, it is in conformity with established facts that many of these animals are vehicles for various infections and are hosts to ticks, flies, and other insects. The remarkable activities in Oregon of the United States Biological Survey, in the destruction of predatory animals have undoubtedly been of great aid in keeping animal and insect-borne disease to a minimum. From May 21, 1915, to June 30, 1928, the following animals were disposed of:

Coyotes	41,795
Bobcats	5,402
Timber wolves	28
Cougars	93
Porcupines	8,451

Miscellaneous animals 7,793

The destruction of predatory animals has kept another disease of animal origin closely confined. Rabies was unknown in Oregon until 1912, when it was introduced from California. At the present time rabies in Oregon is endemic in the southern counties, and in the counties east of the Cascades. About a dozen outbreaks of rabies occur annually among domesticated animals. Since its introduction there have been reported four deaths in humans, although in only two could rabies be corroborated by post-mortem findings and animal inoculation.

The inciting agent of rabies is a filtrable virus. It localizes chiefly in the central nervous system and in the salivary glands. The morphologic agent of rabies, discovered by Negri, is known as Negri bodies. They may be readily demonstrated in smears made from the hippocampus major (Ammonis horn), the cerebral cortex, and the cerebellum by the use of a polychrome stain.

While dogs are the most frequently infected, in Oregon the coyote undoubtedly is the leading reservoir of infection. Compared to the number of rabies-infected animals in other states of the Union, that in Oregon is small. In the five-year period, 1924-1928, out of 170 animal heads examined in the State Hygienic Laboratory, 62 were found to be rabid.

A disease which has recently received a considerable amount of study, undulent fever, is also to be found in Oregon. The disease was first recognized in 1928 in an outbreak occuring at the State Tuberculosis Hospital, and was shown to have been caused by the use of raw milk from the hospital herd. In this outbreak, as well as in all other cases where the epidemiological evidence was available, contagious abortion in cattle was the source of infection. It is estimated that about thirty per cent of the cattle in Oregon are infected with contagious abortion—in some herds the percentage is as high as eighty.

The organism causing undulent fever is a small, gram negative bacillus. Morphologically the organism cannot be differentiated from the one causing contagious abortion in cattle. Differentiation of the *brucella* is made by means of agglutinin absorption tests. Since undulent fever may resemble typhoid fever in its symptomatology, all bloods received for the Widal test at the Oregon Hygienic Laboratory are also run for agglutination tests with the *brucella*.

Up to July 1, 1929, eighteen cases of undulant fever have been reported in Oregon, in all of whom the clinical diagnosis was confirmed by laboratory findings. These cases came from all parts of the state. One case terminated fatally. Because of the widespread infection in cattle, and also because of more critical and certain diagnoses, the number of cases of undulant fever may safely be expected to increase.

SUMMARY

Animal and insect-borne diseases in the Northwest, particularly in Oregon, present a problem in which both economic and public health aspects are involved. Because of peculiar geographic and climatic conditions the section of the state east of the Cascade Mountains has, thus far, been the only source of Rocky Mountain spotted fever and tularemia. which definite and conclusive data might be secured if sufficient time and effort were given to it. One such controversy that seems of sufficient importance to justify the adoption of some thorough system of investigation is the results of the enactment of the Sheppard-Towner Law as manifested in some definite way. The statistics so far available are practically meaningless. The fact that in certain sections where a campaign is conducted under the Sheppard-Towner Law there is a decreased maternal mortaliy does not establish the benefits of that law; nor does the fact that in sections where there have been no such campaigns there is an equal or greater decrease in maternal mortality prove the inefficiency of the law. If there are conditions in the expectant mother having a direct bearing upon maternal mortality

that can be eliminated by the methods followed in these campaigns, it should be possible to have these classified and specific and definite records of the incidence and relief of these conditions noted. From the reports of the activities under this law in one section where it is in force, it seems impossible that any of the methods followed could have any influence whatever upon the factors assumed to be responsible for the increase or decrease in maternal mortality. But in the first place it might be much to the advantage of the profession and the public to determine with some degree of certainty what factors are responsible for the high maternal mortality. It might be well, for instance, to determine to what extent the ignorance and inexperience of medical obstetricians is responsible.

At the forty-fourth annual Conference of State and Provincian Health Authorities of North America held in Washington, D. C., May 31, the president, Mathias Nicoll, Jr., M.D., delivered an address from which is quoted the following:

"To return to the question of the practice of obstetrics as influencing maternal mortality. While undoubtedly the lives of a great many pregnant women are sacrificed annually in this country on account of the inaccessibility of medical care, or the entire lack of it, when the fact is considered that a large part of these deaths—certainly more than half—occurs in cities and communities where doctors *are* available and *do* take charge of such cases, it is essential that the methods of obstetrical practice in this country be taken into account, however difficult it may be for health officers to ascertain the facts regarding them. No one will question the oft-repeated statement, especially by members of the medical profession that the teaching of obstetrics in most of our medical schools is totally inadequate. In many the instruction and experience afforded medical students is far less than that required of midwives in those states which supervise their work and license them. Indeed in some of our medical schools the faculties have not departed from the original conception that the practice of obstetrics is hardly a man's job, and can be mastered apparently by inspiration or after the observation of a few normal cases, in the actual delivery of which the student takes no part. The medical schools then must be held directly responsible for the kind of obstetricians which are being turned out in many parts of the country. On the other hand there has arisen of late years a school of meddlesome obstetrics founded on the practice and teaching of certain unquestionably skilled obstetricians, the popularity of whose practice is undoubtedly based on the very natural desire of women to be relieved in so far as possible of the sufferings of childbirth, even though among the more intelligent there must be knowledge of the additional risk to their lives and health, as well as that of the child, which they must inevitably face. These men have little or no regard for the processes of parturition which nature has perfected and which cannot be improved upon in a vast majority of cases, yet some of them as a matter of routine resort to artificial methods of manual delivery, use instruments and perform cesarean operations on the slightest provocation, or with none at all. I have had occasion to analyze the results of this kind of practice and for one am ready to state that in the broader sense it constitutes malpractice, even though it cannot be legally so adjudged. As health officers, we are helpless to remedy this condition of affairs and it is time that the organized medical profession should be empowered by law and stand ready to clean house in the interest of the lives and health of prospective mothers in this country. If they do not do so, the health authorities will be obliged to perform the task with a weapon, always at their command—pitiless publicity."

In defense of the medical profession in Kansas, in which the general practitioners who are also obstetricians predominate, it is suggested that the complaint

be made more definite and specific. Such charges should not be made lightly, they should not be made at all unless there are indisputable data behind them. Let us have data to show for how many maternal deaths during a fixed period the attending obstetricians could fairly be held responsible; how many of these were occasioned by failures on the part of the obstetrician—failure to do something that should have been done or as it should have been done; how many of these were occasioned by meddlesome midwifery. Then let us have data showing the training and experience of these men, showing with each the number of maternal deaths and the extent of his obstetrical experience indicated by the total number of deliveries he has conducted. The inadequacy of the obstetrical training of medical students is not questioned, and that this is largely responsible for the high maternal mortality seems a logical conclusion. However, such a conclusion should not be reached until sufficient data have been accumulated to justify it. For in obtaining such data some apparently unexpected conditions are likely to be found. For instance, it is not unlikely that the largest per cent of maternal deaths occur in the practice of those obstetricians who have the greatest skill and the largest experience, for into their hands come and are referred most of the anticipated difficult labors and cases with dangerous complications. At any rate let us have the facts and then put the blame where it belongs.

Let us have some information as to how much obstetrical experience shall be regarded as adequate. In view of the fact that one may attend a fairly large number of cases without meeting anything but perfectly normal labors it seems pertinent to ask if obstetrical experience shall be determined by the number of deliveries conducted or by the variety of conditions observed.

From the different opinions advanced and the variety of obstetrical procedures advocated in certain conditions by the authors and teachers in obstetrics it appears that this is by no means a perfected art.

Perhaps all of the information requested is already available and in the hands of the Public Health authorities. For, according to the remarks of Dr. Nicoll, this very important section of the medical profession has already recognized the problem of maternal mortality as its own, has already placed the responsibility upon the obstetrical practitioner and threatened him with "pitiless publicity" for his short comings. Such charges, without sufficient evidence to support them, such threats as made by the president of the State and Provincial Health Authorities of North America do not tend to create a spirit of harmony or encourage co-operation between health authorities and practitioners of medicine.

We are fully aware that such views are not in harmony with current opinion. It seems to be the consensus of opinion with the leading teachers and authors in obstetrics that other, less perfectly trained and less experienced, obstetricians are in some way responsible for the high maternal mortality, and this is an attitude not infrequently met with in other affairs of life. It is very likely true, but in the evidence set out there are many facts that can be otherwise interpreted. We are told that puerperal sepsis is the greatest single cause of the high maternal mortality, but the causes of infection and aseptic methods are subjects fully discussed in so many departments of our medical schools that failure to observe proper precautions can hardly

be blamed upon poor obstetrical training alone.

While the blame for the high maternal mortality is laid upon the inadequate training of obstetricians of the general practitioner class the figures seem to show that the maternal mortality is higher in states where only licensed physicians are permitted to practice obstetrics than in states where a considerable per cent of the obstetrical work is done by mid-wives. This is interpreted as meaning that medical obstetricians are less adequately trained than mid-wives, which of course is absurd. Before any rational interpretation of such statistics could be made, more information concerning the causes of death and the conditions involved should be obtained. Since the Public Health Service has recognized the high maternal mortality as its problem it seems appropriate that through its agencies a survey of the factors entering into the problem should be made.

PHARMACOPOEIAL CONVENTION

The United States Pharmacopoeial Convention will meet in Washington, D. C., to organize the work of revision of this official standard for drugs and medicines, on May 13, 1930. The convention is held every tenth year and the societies and organizations entitled to representation are named in the constitution and by-laws and it is necessary to amend these in order to admit new members. Amendments are first voted on by the board of trustees, then published in the medical and pharmaceutical journals and finally voted on by the convention in session.

The proposed amendments as they have been favorably voted on by the trustees and as they will be submitted to the convention next May, are printed below.

PROPOSED AMENDMENTS TO THE CONSTITUTION AND BY-LAWS OF THE UNITED STATES PHARMACOPOEIAL CONVENTION

The following amendments to the Constitution and By-Laws of the United States Pharmacopoeial Convention are recommended by the board of trustees for adoption by the convention at Washington, May 13, 1930. Words to be deleted are enclosed in brackets and words to be added are printed in italics:

CONSTITUTION

Article II

Membership

Section 1. The members of the United States Pharmacopoeial Convention, in addition to the incorporators and their associates, shall be delegates elected by the following organizations in the manner they shall respectively provide: Incorporated medical colleges and medical schools connected with incorporated colleges and universities; incorporated colleges of pharmacy, and pharmaceutical schools connected with incorporated universities; *departments of incorporated universities, which departments are devoted to scientific research in chemistry or in other lines related to chemistry or pharmacy;* incorporated state medical associations; incorporated state pharmaceutical associations; the American Medical Association; the American Pharmaceutical Association, the American Chemical Society, the National Association of Retail Druggists, (and) the National Association of Boards of Pharmacy, *and the Federation of State Medical Boards of the United States;* provided that no such organization shall be entitled to representation unless it shall have been incorporated within and shall have been in continuous operation in the United States for at least five years before the time fixed for the decennial meeting of this corporation.

Medical and pharmaceutical associations and colleges of medicine and pharmacy in Hawaii, Porto Rico, the Philippine Islands and in the Republic of Cuba (where the pharmacopoeia of the United States has been adopted as the official pharmacopoeia) shall likewise be entitled

to representation by delegates on the same basis as the other associations and colleges mentioned in this section.

Section 2. Delegates appointed by the surgeon-general of the United States Army, the surgeon-general of the United States Navy, and the surgeon-general of the United States Public Health Service, the secretary of agriculture, the secretary of commerce, the Association of Official Agricultural Chemists, the Association of American Dairy, food and drug officials, the National Wholesale Druggists' Association, the National Dental Association, the American Drug Manufacturers' Association, *the American Pharmaceutical Manufacturers' Association, the Federal Wholesale Druggists' Association,* the United States Division of Customs, *(and the University of Havana) and by the organizations not hereinbefore named which were admitted to representation in the Convention of 1900, shall also be members of the corporation. Each body and each branch of the United States Government above mentioned shall be entitled to send three delegates to the meetings of this corporation. But no such delegates as are provided for in this article shall be members until their credentials shall have been examined and acted upon as provided for by the By-Laws. Delegates admitted as members at any decennial meeting shall continue to be members of the United States Pharmacopoeial Convention until their successors shall have been appointed and admitted as delegates to the ensuing convention and no longer.

Chapter VII

BY-LAWS

of the Committees on Credentials and Arrangements

Article I. The Committee on Credentials (and Arrangements) shall consist of five members and shall be appointed by the president from among the delegates to the decennial meeting, not less than two months before the meeting. *The chairman of the board of trustees shall be a member ex officio of the Committee on Credentials.*

Article II. It shall be their duty to examine carefully the credentials of all delegates. *Credentials issued in blank, leaving the names of the delegates and alternates to be inserted subsequently by other than the regularly constituted officers of the appointing associations or institutions, shall not be accepted as meeting the requirements of this chapter.* Immediately before the meeting of the convention they shall furnish to the president a roll containing the names of the incorporators, the officers of the convention, the board of trustees, the general committee of revision and of those delegates whose credentials are unquestioned and approved. They shall also make report to the convention concerning all credentials which have been questioned, or appear to them to be of doubtful validity.

Article III. (This committee shall continue in office until their successors are appointed.) *The Committee on Arrangements shall consist of five members residing in or convenient to the city of Washington, D. C., and appointed by the president,* and shall be charged with the duty of making the necessary arrangements for holding the said decennial meeting. The president, secretary and assistant secretary of the convention shall be ex officio members of the committee.

Chapter IX

of Meetings

Article 1. The regular decennial meetings of the convention shall be held upon the second Tuesday in May every tenth year as provided in the Constitution and the place of meeting shall be in the city of Washington, D. C., *unless, in case of emergency, the board of trustees and officers of the Convention, by joint vote, shall select some other place of meeting and some date within the same year other than the second Tuesday in May.* See Constitution, Article V. Twenty-five members shall constitute a quorum.

Article II. Section 4. Report of the chairman of the board of trustees, the secretary of the board of trustees, (and) the treasurer of the convention *and the*

*Note: It being understood that the University of Havana will be included as a part of the representation accorded to the colleges and associations of the Republic of Cuba and that the elimination of the words "and the University of Havana" is recommended only in the event of the adoption of the new amendment to Section 1.

chairman of the Committee on Revision.

Section 5. The reports of the Committees on Credentials and Arrangements shall then be considered.

A QUESTIONNAIRE

With each revision of the pharmacopoeia there is more or less wonderment expressed because some more or less commonly used drug has been omitted. It is possible that members of the profession might render considerable service to the revision committee if they would take advantage of the opportunity now offered them and communicate such facts as may be in their possession concerning some of the drugs in question.

The committee has prepared a questionnaire for this purpose and will send them to any one sufficiently interested to write E. Fullerton Cook, 636 South Franklin Square, Philadelphia, Pa., who is chairman of the committee on revision.

CHIPS

A few cases of empyema and of bronchiectasis treated by injections of neosalvarsan have been reported by Hans Edel. In empyema from 0.45 g. to 0.6 g. dissolved in 10 c.c. of distilled water was injected into the pleura after first aspirating the pus. The pleura appears to be very tolerant to neosalvarsan. He has also used similar solutions in the treatment of bronchiectasis by the method used for the introduction of lipiodol, after cocainizing the trachea it is injected through a laryngeal catheter. Good results are claimed in the few cases reported. The method will not recommend itself for general use in such cases, however, until further investigations have been made and more clinical evidence has been furnished.

Between the cults, licensed and unlicensed, that are practicing medicine and the nurses to whom is now delegated much of the work that should belong to the medical profession, a considerable part of the people get no better medical service than they had before the medical schools were standardized and medical education put on its present high plane.

After completing over six thousand seven hundred thyroid operations Lahey has given some conclusions reached from his experience, New England Journal of Medicine, May 2, 1929. He states his mortality in 1927 was 0.6 per cent and in 1928 was 0.28 per cent. His records show that the pre-operative employment of iodine has practically eliminated preliminary pole ligation. He states that there are practically no thyro-cardiacs in which the decompensation is due to a superimposed thyroidism that are not operable. In thyroidism associated with tuberculosis or with diabetes, subtotal thyroidectomy markedly assists in controlling the associated condition. Any parathyroid glands accidentally removed during operation should be found and immediately grafted into a sternomastoid muscle.

Some years ago there was a great deal to be said about the economic loss occasioned by intemperance. Little is heard on that subject now, from the same sources at any rate, but the cost of liquor is ten times what it was then and as to the amount consumed one can only read the newspapers and decide which guessers to believe. It seems to be generally conceded, however, that since the adoption of the Eighteenth Amendment there has developed in this country an industry of mammoth proportions in which enormous sums of money are involved—the bootleg business. It is an industry that could be destroyed overnight by repealing the government tax on alcoholic beverages and ceasing all efforts to enforce the prohibitory laws, because there would be no profit in the bootleg business. Without considering the legal or moral status of the business, would its destruction produce as great a financial crisis as the destruction of any other industry that keeps an equal amount of money in circulation and an equal number of men employed?

A study of diaphragmatic hernia is reported by Greenwald and Steiner in the August number of the American Journal of Diseases of Children. Their conclu-

sion is that diaphragmatic hernia is not as infrequent as is generally believed. The clinical diagnosis is difficult because of the variety of symptoms that may be presented. In the eighty-two cases studied, six were diagnosed clinically, twenty-one were diagnosed by routine roentgenologic studies and forty-seven were diagnosed at autopsy. Diaphragmatic hernia is more often confused with pleural effusion than with any other condition, especially in older children. The introduction of an aspirating needle into the chest cavity in the presence of a diaphragmatic hernia is not a harmless procedure, death may result. In the newborn infants a combination of circulatory and respiratory disturbances with difficulty in swallowing and vomiting should suggest diaphragmatic hernia. In the new-born it may be confused with intracranial hemorrhage, pyloric stenosis, congenital atelectasis of the lung, atresia of the esophagus and dextrocardia.

Romanis reports some observations on 500 consecutive operations on cases of Graves' disease, in the Lancet, July 20. There were one hundred and five hospital cases and of these, four died, giving an operative mortality of 3.8 per cent. Three hundred and ninety-five were private cases and of these, six died, giving an operative mortality of 1.5 per cent or a total operative mortality of 2 per cent. He suggests that those cases, and only those cases, should be classified as Graves' disease where in addition to the signs and symptoms so well known to represent thyroid toxemia there are also definite enlargement of the heart and definite changes in the eyes. Those cases which have no enlargement of the thyroid do not show as much improvement after thyroidectomy as ordinary cases. It is possible that in such cases other of the ductless glands are involved.

Warren has an article in the Lancet, July 6, in which he discusses some of the influences upon the mortality rate in appendicitis. He says that appendicitis is developing a more severe character or is more common. There is a considerable variation in its severity and in the mortality which he says in his experience varies from 3 to 10 per cent. He is not much in favor of the expectant treatment, especially is this treatment objectionable in children, in whom the mortality is greatest. "Early diagnosis and immediate operation are counsels of perfection." He admits, however, that early diagnosis is not always possible, especially in children and old people who are frequently not seen by the doctor until a well marked peritonitis has developed. The main causes of death in appendicitis are peritonitis and mechanical obstruction.

Those who seem to be greatly interested in the subject of birth control, particularly those in the medical profession might, with profit to themselves and the public, go more deeply into the subject than the discovery of methods for the prevention of conception. A scientific study of the factors influencing fecundity and sterility may bring to light better methods of regulating the character as well as the number of offspring than have yet been suggested. It is said that a male whose semen contains less than sixty million spermatozoa per cubic millimeter is practically sterile. It is not impossible, in spite of statements to the contrary, that both the number and vigor of the sperm cells may be influenced by the character of the diet and experiments that have been conducted upon animals by various investigators seem to prove that such is the case. Less seems to be known as to the factors involved in the fecundity of the female but that it may be increased under certain conditions is indicated.

A very interesting discussion of the results of turtle-vaccine therapy in the prophylaxis and treatment of tuberculosis may be found in the Lancet, July 6, in a report of a meeting of the Tuberculosis Association held at Cambridge, June 27. Dr. Frank Nagelschmidt submitted some valuable statistics and clinical data. In Hungary, he stated, more than 15,000 patients have been inoculated with turtle vaccine and the death rate from tuberculosis has been lowered 60 per cent. In Pest-erzsebet, in 1925, 1926

and 1927, 4812 cases of tuberculosis in the first stage were treated, and of these twelve died, 9 became worse and the remainder were cured; 216 cases in the third stage were vaccinated, and of these 67 died, 23 became progressively worse and 109 cases resumed their work. One hundred and twenty-five cases in the third stage were not treated with vaccine; and of these 115 were dead, 10 became worse and not a single case improved. About three million cases have now been treated with turtle-vaccine in various countries and Nagelschmidt suggests that much of the expenditure and disappointment in the campaign against tuberculosis could have been avoided if turtle-vaccine therapy had been used systematically since its discovery by Friedmann.

Turtle vaccine, which was first announced by Friedmann in 1912 was made from a species of living tubercle bacilli which was avirulent for warm blooded animals; but it could live long enough in the human body to produce lasting immunizing effects. Only one stock of turtle tubercle bacilli has so far been found that meets all the requirements for a vaccine. This was grown in 1903 from the tuberculous lungs of a sea-turtle with spontaneously acquired tuberculosis. This stock, it is claimed, has not changed biologically since its original culture. Its characteristics of growth on antificial media, its immunizing action against bovine and human tuberculosis in warm blooded animals, and its favorable therapeutic effects on early tuberculosis, have not changed. The turtle tubercle bacillus was non-pathogenic in the bodies of warm blooded animals and it could be kept alive in animal or human bodies for many months.

PERSONALS

According to newspaper reports Dr. Logan Clendening has been sued for $20,000 by Miss Nora Kelly for unlawfully using her picture in his book called "The Human Body."

Dr. Chas S. Huffman a former president of this Society, has been reappointed for a term of four years as a member of the State Board of Administration.

It was recently stated by one of the daily newspapers that Governor Reed has asked for the resignation of Dr. C. J. McKnight of Wichita as a member of the State Board of Medical Examination and Registration.

MEDICAL SCHOOL NOTES

Dr. L. A. Calkins has recently been appointed head of the Department of Gynecology and Obstetrics. Dr. Calkins is from the University of Virginia Medical School and held the same position there.

Memorial Hospital. Dr. T. J. Sims, Jr., Dr. Jesse Potekin, Minnesota University, is serving internship at the Bell Universty of Virginia Medical School, has been appointed resident in Gynecology and Obstetrics.

At the meeting of the Missouri Valley Medical Society, Iowa City, Iowa, September 26 to 28, Dr. Thomas G. Orr talked on the Treatment of Peritonitis, Dr. Logan Clendening talked on Physical Diagnosis and Dr. Frank C. Neff on Some Unusual Clinical Manifestations in Children, with lantern slides. Dr. Ralph H. Major was president of this association last year.

Dr. Frank C. Neff attended the Central State Pediatrics Society meeting at Milwaukee, Wisconsin, September 27 and 28.

Dr. Thomas G. Orr has recently returned from a hunting trip in Arizona. He claims to have bagged a large, black bear.

Three men have recently been appointed as assistants in the Dental Surgery Department in the Out-patient Department of the Bell Memorial Hospital; they are Drs. James A. Elliott, Cliff R. Cline and J. Edward Joy.

Dr. H. R. Wahl read a paper on Gall Bladder Disease and Dr. Ralph H. Major read a paper on Nephritis at the meeting of the Wisconsin State Medical Association, Madison, Wisconsin, September 12.

Dr. Orlin Longwood, assistant in Pathology Department, has accepted a posi-

tion in Pueblo, Colorado. Dr. Samuel Katz, Wisconsin University has been appointed to this position.

DEATHS

Morris A. Millard, Topeka, aged 81, died July 13 of chronic heart disease. He graduated from University of Buffalo School of Medicine in 1873.

Joseph Wakefield Myers, Elkhart, aged 43, died in August of carcinoma of stomach. He graduated from University of Kansas School of Medicine in 1913.

Francis L. Keeler, Treece, aged 70, died July 17 of heart disease. He was licensed in 1901.

Lewis Lindsay Dyche, Jr., Utica, aged 33, died April 29 of acute nephritis. He graduated from University of Kansas School of Medicine in 1919. He was secretary of the Rush-Ness County Medical Society.

Benjamin M. Barnett, Kansas City, aged 74, died September 4 of heart disease. He graduated from Jefferson Medical College in 1882. He was on the staff of Bethany Methodist Hospital. He was a member of the Society.

Dr. Geo. S. Wilcox, Mulvane, aged 56, died in his office October 2 from cerebral hemorrhage. He graduated from Kentucky University Medical Department, Louisville, in 1904. He was a member of the Society.

BOOKS

Surgical and Medical Gynecologic Technic by Thomas H. Cherry, M.D., Professor of Gynecology, New York Post-Graduate Medical School and Hospital, etc. Published by F. A. Davis Company, Philadelphia. Price $8.00.

This is not a text book on gynecology, but is prepared for the guidance of practitioners in the treatment of his gynecologic cases. Operative procedures are carefully described and illustrated. Only one operation is described for each condition. In the medical treatment the author leans to electro-therapy. In all parts of the work the illustrations show careful preparation and aid the reader very materially in fully understanding the descriptions given.

Minor Surgery. Frederick B. Christopher, M.D. Associate in Surgery at Northwestern University Medical School, Chicago. With a foreword by Allen B. Kanavel, M.D., Professor of Surgery, Northwestern University Medical School. Octavo of 694 pages with 465 illustrations. Philadelphia and London: W. B. Saunders Company, 1929. Price $8.00 net.

The author describes the best procedure in minor surgery. He gives very careful details and illustrates the methods so that they may be easily followed. It should be a most serviceable book covering as it does the treatment of the cases that usually fall into the hands of the general practitioner and must be treated by him. Apparently nothing in this line has been omitted.

Varicose Veins with special reference to the injection treatment by H. O. McPheeters, M.D. Published by F. A. Davis Company, Philadelphia. Price $3.50.

The author is director of the varicose vein and ulcer clinic of the Minnesota General Hospital and has prepared this work after careful observation of approximately eight hundred cases treated. He says the excision of varicose veins has proved unsuccessful in a large percentage of cases. He describes the injection treatment and the results he has observed.

Conquest of cancer by radium and other methods by Daniel Thomas Quigley, M.D. Instructor in surgery, University of Nebraska College of Medicine, etc. Published by F. A. Davis Company, Philadelphia. Price $6.00.

Dr. Quigley has produced a book on cancer that should awaken the interest and stimulate the curiosity of the general profession. He strikes one as being perhaps a little too optimistic and possibly too confident, but having acquired his point of view, one must admit the soundness of his position. He says: "Only within the last few years have we been able to uncover the fact that something exists in cancer besides the terminal, fatal, bleeding, paining, stinking stage. Within the last few years we have been able to follow events through from the infliction of certain insults to tissue to an exaggerated defense mechanism which builds up an exaggerted mass of new cells, through a period when these cells become parasitic and prey upon the vital parts of the host, eventually causing

death." His optimism is best shown in a few phrases picked up as one goes through his introductory remarks. "The only thing necessary for the control of the disease being the control of the factors that lead up to the development of the disease. Cancer instead of being a complex thing of which we know nothing is a very simple thing of which we know a good deal. We probably know more about cancer than about any other chronic disease. Instead of being hopeless from the standpoint of cure it is probably the most easily and surely curable of any of the chronic diseases."

Preventive Medicine, outline of, prepared under auspices of the committee on public health relations, New York Academy of Medicine. Published by Paul B. Hoeber, Inc., New York. Price $5.00.

It is suggested in the foreword of this book that the attitude of the general practitioner toward preventive medicine is not exactly enthusiastic, and the methods and results belong to the family and school authorities as much as to the doctor. Two lines of action are recognized, preventing the contraction of disease and preventing the development of serious symptoms of disease contracted. The importance or value of periodic health examinations is stressed and the form adopted by the A.M.A. is reproduced. The publishers and the authors should be commended for the production of this book.

A Study of Masturbation and the Psychosexual Life by John F. W. Meagher, M.D., Neurologist to various hospitals. Second edition. Published by William Wood & Co., New York. Price $2.00.

It is generally conceded that there is too little knowledge of sex manifestations, and there is no doubt that there is at this time a good deal of misinformation since sex seems to have become a very popular subject for discussion. This book presents the subject from a scientific viewpoint and should be of considerable value to the physician in interpreting some of the perplexing mental and physical disturbances he is sure to see.

Sterilization for Human Betterment by E. S. Gosney, B.S., L.L.B., and Paul Popenoe, D. SC. Published by the Macmillan Company, New York.

This book contains a summary of the results of 6000 sterilizations in California. The need for sterilization of the unfit is pretty generally recognized, but the authors have presented the matter in a very convincing way. The best methods are described as well as the conditions for which the operations should be done.

Materia Medica and Therapeutics by Reynold Webb Wilcox, M.D., etc. Twelfth edition. Published by P. Blakiston's Son and Company, Philadelphia. Price $5.00.

This book has been revised in accordance with the United States Pharmacopoeia X. All the official preparations are described and a goodly number that are not official but are in general use. Considerable attention has been given to pharmacologic action and therapeutic uses of the remedies described. The classification is practical and convenient.

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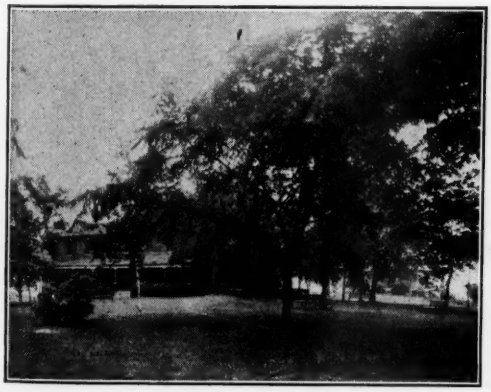

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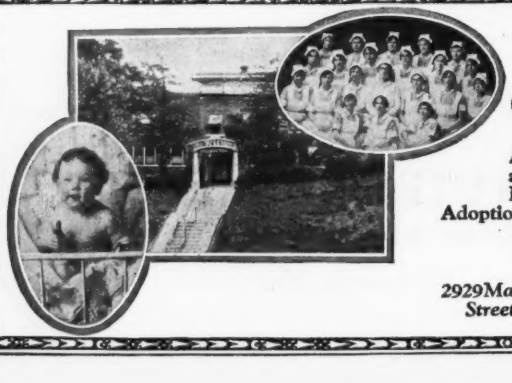

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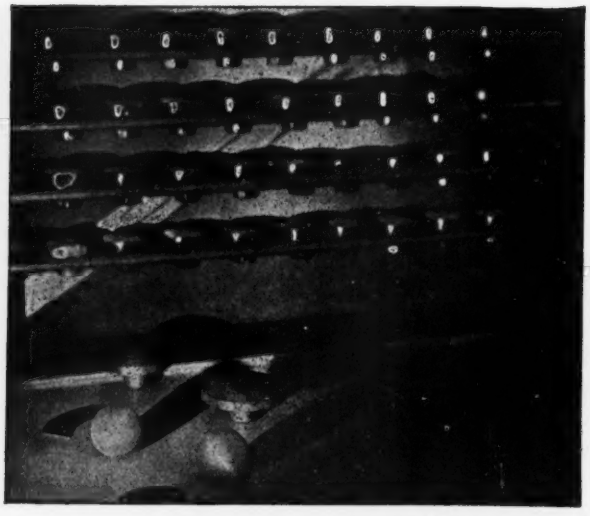

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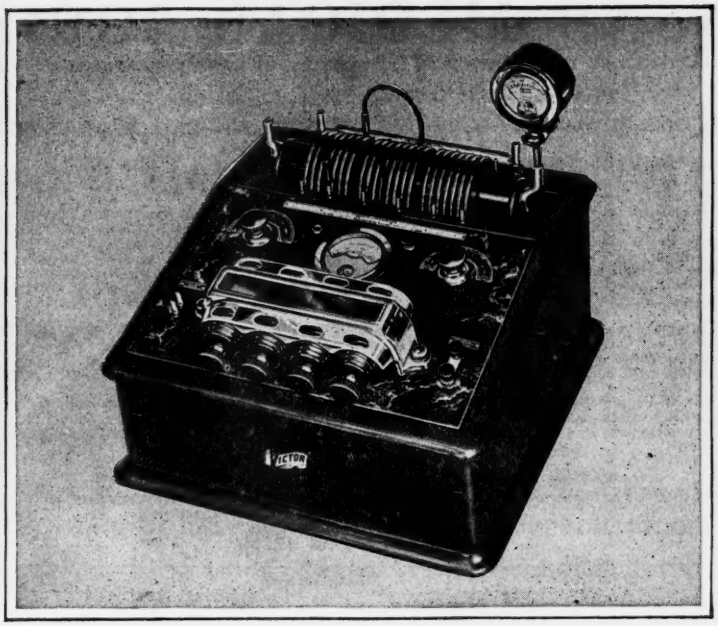

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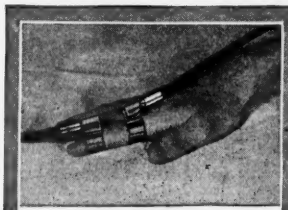

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KANSAS MEDICAL SOCIETY

CHARTERED BY THE TERRITORIAL LEGISLATURE OF KANSAS, FEBRUARY 19, 1859

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Secretary—J. F. HASSIG, M.D., Kansas City **Treasurer—GEO. M. GRAY, M.D., Kansas City**

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Members of Component County Societies are members of the Kansas Medical Society. Physicians residing in counties where no County Society exists may join the society of an adjoining county. Physicians residing where no County Society exists, who are members of a district or other independent society approved by the Council, may be admitted to membership.

ANNUAL DUES $5.00, due on or before February 1st of each year.

Due should be paid to the Secretary of the Component County Society, or, if not a member of a County Society, to the Secretary of the Kansas Medical Society.

OFFICERS FOR 1929

COUNTY	PRESIDENT	SECRETARY	MEETINGS HELD
Allen	Garlinghouse, O. L., Iola	P. S. Mitchell, Iola	
Anderson	Johnson, W. K., Garnett	Milligan, J. A., Garnett	2nd Wednesday
Atchison	Dingess, M. T., Atchison	Horner, T. E., Atchison	1st Wed. ex. July and August
Barton	I. J. Brown, Hoisington	L. R. McGill, Hoisington	1st Tuesday, Jan., Apr., June, Oct.
Bourbon	W. S. Gooch, Fort Scott	R. Y. Strohm, Fort Scott	2nd Monday
Brown	H. J. Deaver, Sabetha	S. M. Hibbard, Sabetha	2nd Friday
Butler	G. G. Whitley, Douglas	J. M. Devereaux, El Dorado	2nd Friday
Central Kansas	L. V. Turgeon, Wilson	F. K. Meade, Hays, Kan.	Dec., March, June, Sept.
Cherokee	R. C. Lowdermilk, Galena	W. H. Iliff, Baxter Springs	2nd Monday
Clay	C. C. Stillman, Morganville	X. Olsen, Clay Center	2nd Wednesday
Cloud	Ellis Starr, Concordia	R. E. Weaver, Concordia	Last Thursday
Coffey	H. T. Salisbury, Burlington	A. B. McConnell, Burlington	
Cowley	Wentworth, J. L., Arkansas Cy	Beatson, L. M., Arkansas City	1st Tues. ex. July, Aug., Sept.
Crawford	Kiehl, O. B., Pittsburg	Rush, F. H., Pittsburg	3rd Thursday
Decatur-Norton	Cole, C. W., Norton	Stephenson, Walter, Norton	Called
Dickinson	T. R. Conklin, Abilene	D. Peterson, Herington	
Doniphan	A. E. Cordonier, Troy	W. M. Boone, Highland	1st Tues. Jan., Apr., July, Oct.
Douglas	A. J. Anderson, Lawrence	R. B. Hutchinson, Lawrence	1st Thursday
Elk	R. C. Hutcheson, Elk Falls	DePew, F. L., Howard	Called
Finney	C. Rewerts, Garden City	O. W. Miner, Garden City	
Ford	C. E. Bandy, Bucklin	W. F. Pine, Dodge City	Last Wednesday
Franklin	Wm. J. Scott, Ottawa	Davis, G. W., Ottawa	
Harper	C. E. Ressler, Anthony	A. E. Walker, Anthony	3rd Wed., Mar., June, Sept., Dec.
Harvey	Norris, H. H., Whitewater	Martin, M. C., Newton	1st Monday
Jackson	M. S. McGrew, Holton	C. A. Wyatt, Holton	1st Wed., Jan., Apr., July, Oct.
Jewell	J. E. Hawley, Burr Oak	C. W. Inge, Formosa	
Johnson	Jones, C. W., Olathe	Bronson, D. E., Olathe	Second Monday
Kingman	C. W. Longenecker, Kingman	H. E. Haskins, Kingman	
Labette	Stevenson, O. E., Oswego	Naramore, J. T., Parsons	2nd Thursday ex. summer months
Leavenworth	Leon Matassarin, Leavenworth	Stacy, H. J., Leavenworth	1st Monday
Lincoln	H. L. Hinkley, Barnard	M. Newlon, Lincoln	1st Monday
Linn	D. E. Green, Pleasanton	H. L. Clarke, LaCygne	2nd Thursday
Lyon	C. L. Patton, Emporia	M. A. Finley, Emporia	1st Tuesday
Marion	J. H. Saylor, Marion	E. H. Johnson, Peabody	1st Tuesday
Marshall	McAllister, R. L., Marysville	Haerle, Henry, Marysville	2nd Wednesday
Meade-Seward	F. W. Huddleston, Liberal	Trekell, E., Liberal	Last Thurs., July, Oct., Jan., Apr.
Miami	Lowe, O. C., Paola	Fowler, J. F., Osawatomie	Second Tuesday
Mitchell	W. H. Cook, Beloit	Madtson, Martha, Beloit	
Montgomery	White, M. L., Coffeyville	Pinkston, J. A., Independence	
McPherson	W. C. Heaston, McPherson	G. R. Dean, McPherson	2nd Wednesday
Nemaha	F. S. Deem, Oneida	Murdock, S., Jr., Sabetha	
Neosho	L. D. Johnson, Chanute	A. M. Garton, Chanute	Last Thursday every other month
Osborne	J. D. Johnson, Alton	T. H. Smith, Osborne	Second Monday
Ottawa	L. M. Hinshaw, Bennington	C. M. Vermillion, Minneapolis	
Pawnee	G. S. Weaver, Larned	C. E. Sheppard, Larned	
Pratt	E. M. Ireland, Pratt	W. F. Bernstorf, Pratt	2nd Tuesday
Reno	F. W. Koons, Nickerson	C. A. Boyd, Hutchinson	1st Monday
Republic	C. V. Haggman, Scandia	H. D. Thomas, Belleville	4th Friday
Rice	Trueheart, M., Sterling	Little, J. M., Sterling	2nd Thursday in November
Riley	Schoonhoven, R. G., Manhattan	Colt, J. D., Jr., Manhattan	First Monday
Rush-Ness	Roy Russell, Ness City	W. Singleton, McCracken	First Monday
Saline	Seitz, G. W., Salina	Dillingham, W. R., Salina	
Sedgwick	E. D. Carter, Wichita	Frances H. Schiltz, Wichita	1st and 3rd Tuesdays
Shawnee	J. G. Stewart, Topeka	Brown, Earle G., Topeka	1st and 3rd Tuesday
Smith	D. W. Relihan, Smith Center	V. E. Watts, Smith Center	1st Monday
Stafford	M. M. Hart, Macksville	J. T. Scott, St. John	Second Thursday
Sumner	J. R. Burnett, Caldwell	I. H. Dillon, Wellington	2nd Wednesday
Washington	H. D. Smith, Washington	W. M. Earnest, Washington	Last Thursday every quarter
Wilson	B. P. Smith, Neodesha	E. C. Duncan, Fredonia	
Woodson	S. H. Murphy, Yates Center	A. C. Dingus, Yates Center	2nd Monday
Wyandotte	Asbell, E. L., Kansas City	Lucas, R. T., Kansas City	Every 2nd Tues. ex. summer months

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In difficult feeding cases commonly known as Marasmus or Malnutrition, the first thought of the attending physician is an immediate gain in weight, and then to so arrange the diet that this initial gain will be sustained and progressive gain be established.

Every few ounces gained means progress not only in the upward swing of the weight curve, but in digestive capacity in thus clearing the way for an increasing intake of food material.

As a starting point to carry out this entirely rational idea, the following formula is suggested:

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Skimmed Milk . . .	**9 fluidounces**
Water	**15 fluidounces**

This mixture furnishes 56.6 grams of carbohydrates in a form readily assimilated and thus quickly available for creating and sustaining heat and energy. The mixture supplies 15.5 grams of proteins for depleted tissues and new growth, together with 4.3 grams of mineral salts which are necessary in all metabolic processes. These food elements are to be increased in quantity and in amount of intake as rapidly as continued improvement is shown and ability to take additional nourishment is indicated.

A pamphlet devoted exclusively to this subject and a liberal supply of samples of Mellin's Food will be sent to physicians upon their request.

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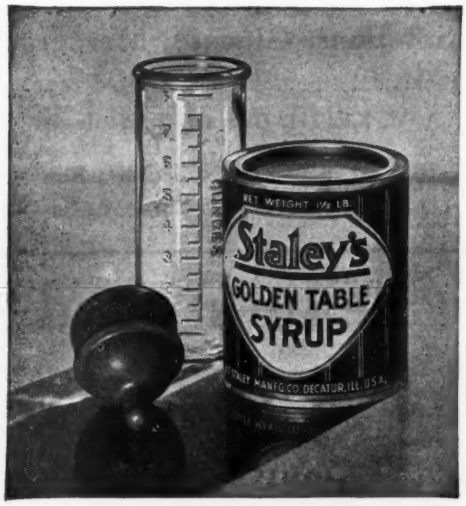
It answers every essential requirement of a syrup for infant feeding



DOCTORS cannot afford to take chances on an inferior grade of corn syrup when it is to be used in the preparation of food for infants.

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A careful process of manufacture gives this syrup purity, uniformity and clearness. These, combined with its 28.5% dextrose and maltose content — the same sugars found in expensive baby foods — make it ideally suited for infant feeding.

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